

**APPENDIX A**

**TRAFFIC IMPACT ANALYSIS**

**SORRENTO HILLS**

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**PUBLIC FACILITIES FINANCING PLAN**

*Traffic Impact Analysis*

# Torrey Hills

June 7, 1996

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## SECTION 1

### INTRODUCTION

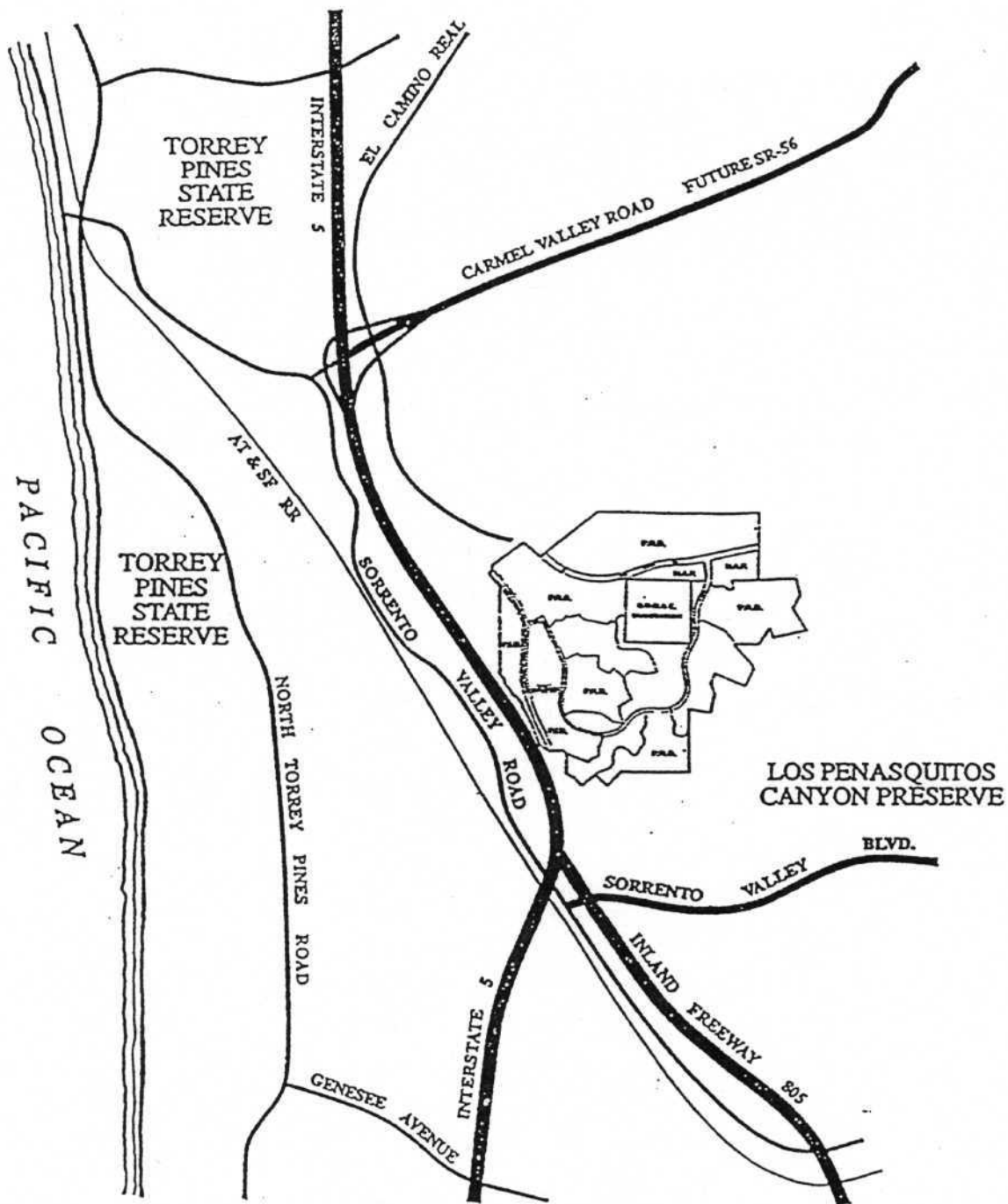
This report documents the methods and findings of a traffic impact analysis conducted by Kimley-Horn and Associates, Inc., to evaluate the long-term future traffic conditions in the Sorrento Hills Community resulting from revised land use types and intensities within the Torrey Hills project.

#### 1.1 PROJECT DESCRIPTION

The Torrey Hills project is a major multi-use development that comprises the largest part of the future Sorrento Hills Community. The project is located east of I-5, between Carmel Valley Road and Sorrento Valley Boulevard. Figure 1.1-1 depicts the location of the project in a regional context. The Torrey Hills development would take its primary access to/from I-5 via Carmel Mountain Road, a portion of which is already under construction. The project is proposed to include office, residential, industrial, commercial, educational and recreational uses. This traffic study was conducted to identify the community-wide traffic impacts resulting from land use changes within the Torrey Hills project. The analysis takes into account both the Torrey Hills project and the remaining elements of the Sorrento Hills Community.

Sorrento Hills land uses (including the Torrey Hills project) will generate 65,123 cumulative daily trips when fully built out, including 6,374 during the morning peak hour and 7,853 during the afternoon peak hour. The approved Sorrento Hills Community Plan would generate 6,800 more daily trips (including 1,600 more during the morning peak hour alone) than proposed land uses. This decrease is due to revised land uses within the Torrey Hills project. Proposed land uses feature a greater proportion of single-family dwelling units, as compared to multifamily residences, than the approved plan. Because of the lower density of single-family residential developments, this land use type will generate fewer trips per acre of coverage than multifamily uses. The proposed plan also has much reduced industrial land use intensity than the approved plan; approved industrial land uses would have generated 14,000 more trips than proposed industrial uses. The industrial uses in the approved plan are replaced by retail uses in the proposed plan. This land use substitution results in much greater "capture" of project-generated traffic because a high concentration of industrial uses would tend to attract traffic from throughout the region, while retail uses of the type proposed would be oriented toward fulfilling the shopping needs of Sorrento Hills and the surrounding residential development.

The Sorrento Hills Community Plan was adopted in December, 1994. Kimley-Horn's traffic study for the Torrey Hills project (formerly known as Torrey Reserve Heights), completed in September, 1994, provided a comprehensive analysis of future Sorrento Hills traffic conditions. (Portions of this study are reproduced in the appendices to the current study.) The findings of this study indicated adequate daily roadway segment and peak hour intersection Level of Service (LOS). The current proposal provides for improved internal circulation, reduced project trip generation, more internal capture of project-related trips, and a better peak hour directional split



NO SCALE



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# TORREY HILLS GENERAL LOCATION MAP

FIG. 1.1-1

of project traffic. As a result, traffic conditions are expected to be improved over conditions expected with the approved plan.

## **1.2 STUDY SCOPE AND PURPOSE**

This traffic study has been conducted in order to evaluate the long-term future impacts of land use and transportation network changes within Torrey Hills. This analysis focuses on the Sorrento Hills Community Plan area only, since the proposed project represents a reduction from the recently approved project. The scope and methodology were developed in consultation with City of San Diego staff.

Peak hour traffic conditions at the following 12 intersections were analyzed in this study:

- Carmel Mountain Road/Sorrento Valley Road
- Carmel Mountain Road/I-5 southbound ramps
- Carmel Mountain Road/I-5 northbound ramps
- Carmel Mountain Road/Vista Sorrento Parkway
- Carmel Mountain Road/El Camino Real/Carmel Creek Road
- Carmel Mountain Road/"C" Street
- Carmel Mountain Road/Shopping Center Access
- Vista Sorrento Parkway/"A" Street
- Vista Sorrento Parkway/"B" Street
- "B" Street/"C" Street
- "A" Street/"C" Street
- Carmel Mountain Road/"HH" Street

Street segments along the following roadways were also analyzed:

- Carmel Mountain Road
- Vista Sorrento Parkway
- "A" Street
- "B" Street
- "C" Street
- El Camino Real

### **1.2.2 TIME PERIODS ANALYZED IN THIS STUDY**

Street segments were evaluated based on forecasted average daily traffic volumes, based on City of San Diego daily Level of Service (LOS) standards. Intersections and freeway ramps were evaluated during the morning and afternoon peak hours. The analysis concentrates on peak hours since these typically represent periods when congestion would likely occur.

### **1.2.3 TRAFFIC SCENARIOS ANALYZED IN THIS STUDY**

This study provides a qualitative evaluation of existing conditions in the study area and a quantitative analysis of long-term future (year 2010) of traffic conditions. Improvements are suggested at locations where significant impacts were anticipated.

### **1.3 ORGANIZATION OF THIS REPORT**

Section 2 describes the existing circulation system and briefly discusses traffic conditions in the vicinity of the proposed project. Section 3 analyzes long-term future (year 2010) traffic conditions on study area street segments, freeway ramps, and intersections. Section 4 compares the proposed project to the approved land uses. Section 5 analyzes project phasing and Section 6 summarizes the key findings and conclusions of the foregoing analysis.

## SECTION 2

### EXISTING CONDITIONS

The transportation infrastructure planned to serve the Torrey Hills project is under construction and land development has not yet occurred. For this reason, the discussion of existing traffic conditions in the study area are general in nature.

#### 2.1 EXISTING TRANSPORTATION FACILITIES AND TRAFFIC CONDITIONS

As discussed in the preceding section, the project is located east of I-5 and south of Carmel Valley Road. The following paragraphs describe key elements of the existing transportation network in the area.

Interstate 5 is an Interstate freeway extending from Mexico to Canada. As of 1994, the Average Daily Traffic (ADT) volume for the I-5 segment between the I-5/I-805 merge and Carmel Valley Road was 211,000 vehicles per day. Work has begun on a widening program to provide additional High Occupancy Vehicle (HOV) and general purpose lanes north of the merge.

State Route 56 is a four-lane freeway extending eastward from I-5 to its current terminus east of the Carmel Valley Community. SR-56 is planned to be extended eastward to another currently-constructed segment between I-15 and Black Mountain Road.

Carmel Valley Road is an east/west roadway that connects the Carmel Valley Community to I-5. Carmel Valley Road extends eastward from its terminus at North Torrey Pines Road to its ramps to/from SR-56. Carmel Valley Road continues east of SR-56 and terminates at Black Mountain Road.

El Camino Real is a major north/south facility extending from Oceanside to the Torrey Hills project area. El Camino Real has been a six-lane facility from SR-56 to Carmel Mountain Road.

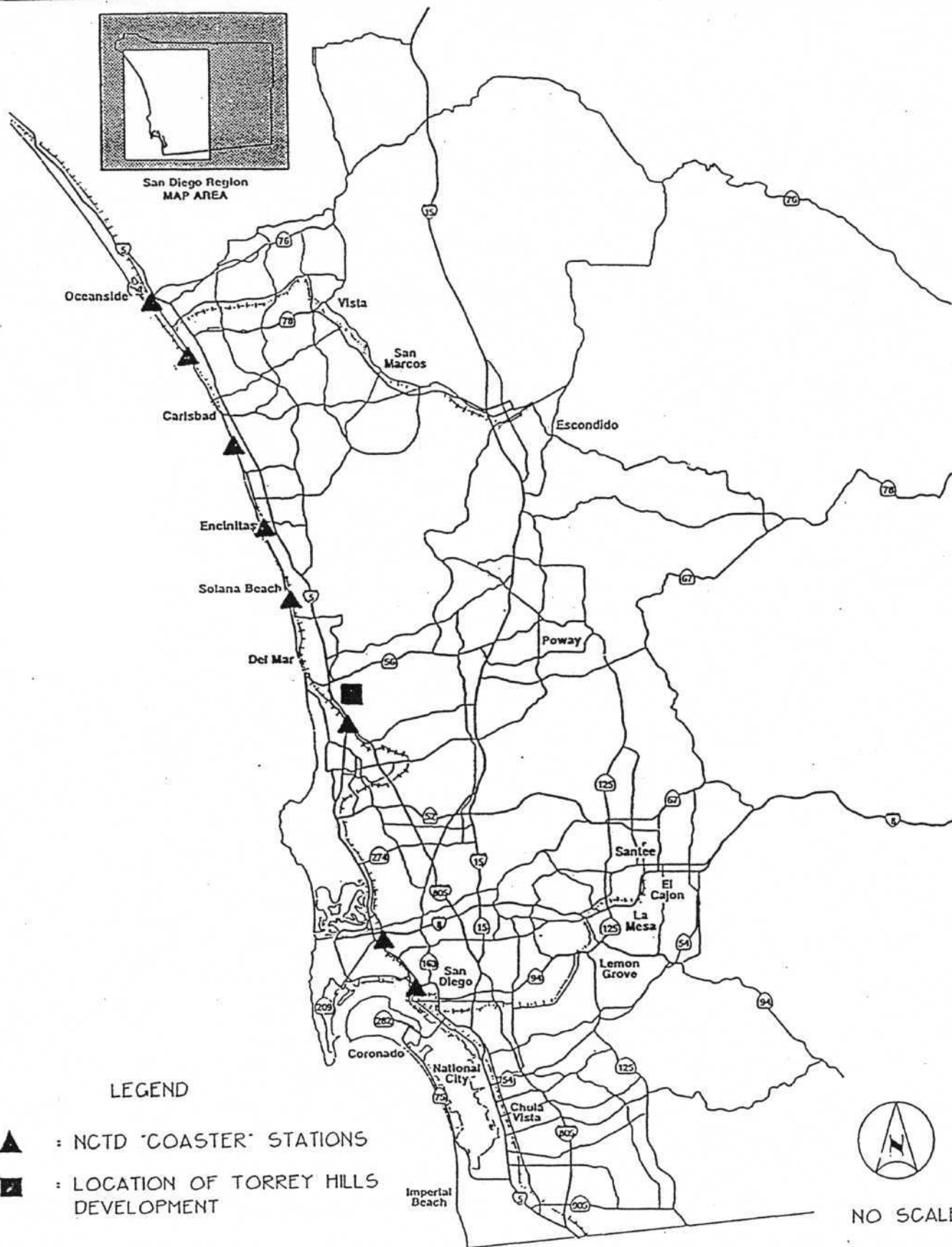
Carmel Mountain Road is a two-lane street from Sorrento Valley Road to I-5. An interchange is planned with I-5 as part of the Sorrento Hills development agreement. Carmel Mountain Road has been constructed from I-5 easterly to the El Camino Real intersection as a six-lane primary arterial.

##### 2.1.1 COASTER CONNECTION

The North County Transit District (NCTD) operates the "Coaster" commuter rail service between Oceanside and downtown San Diego. There are eight stations along the route, including one in Sorrento Valley north of the I-5/I-805 merge. NCTD operates shuttles at no additional charge to patrons travelling between the station and Sorrento Mesa, Carroll Canyon, Campus Point and

Torrey Pines/UCSD Transfer on a reservation basis. Figure 2.1-1 depicts the location of Coaster stations in relation to the location of the proposed project. As shown in this figure, the proximity of the Torrey Hills project to the Sorrento Valley Coaster station presents an excellent opportunity to provide regional mass transit service to the employees and residents of the Torrey Hills development, particularly if a loop-type shuttle service were extended to the community.

NCTD operates five southbound and two northbound Coaster trains during the morning commuting period and five northbound and two southbound trains during the afternoon peak period. One mid day train is provided in each direction. In addition, special Friday night service was inaugurated in June, 1995 with two trains operating in each direction. Headways (i.e., the time between trains) in the peak direction of travel (i.e., southbound in the morning and northbound in the afternoon) vary between 28 and 45 minutes.



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LOCATION OF NCTD  
'COASTER' STATIONS

FIG. 2.1-1



## SECTION 3

### LONG-TERM FUTURE (YEAR 2010) CONDITIONS

The following paragraphs describe long-term future conditions in the Torrey Hills project. Succeeding sections will analyze future traffic conditions, compare the traffic impacts of proposed land uses to those of approved land uses, and describe project phasing.

#### 3.1 FUTURE TRANSPORTATION SYSTEM

##### 3.1.1 FUTURE STREET NETWORK

The Sorrento Hills roadway network has been modified from the approved plan in order to provide for better circulation of project-related traffic and to serve the proposed development patterns. Among the key changes was the extension and realignment of the former "D" Street to connect with Carmel Mountain Road near the eastern edge of the project. This street is now known as "C" Street and includes a segment formerly referred to as Sorrento Hills Boulevard East. "C" Street's alignment has been shifted to the west opposite a residential access street and now provides only two connections to Vista Sorrento Parkway (via "A" Street and "B" Street), whereas the previous plan provided for three connections. The extension of "C" Street will improve intra-project access and allow motorists to avoid possible congestion at the Carmel Mountain Road intersections with Vista Sorrento Parkway and El Camino Real. Figure 3.1-1 depicts the proposed future street alignments and classifications. (Refer to Appendix A for a map presenting the superseded street system.)

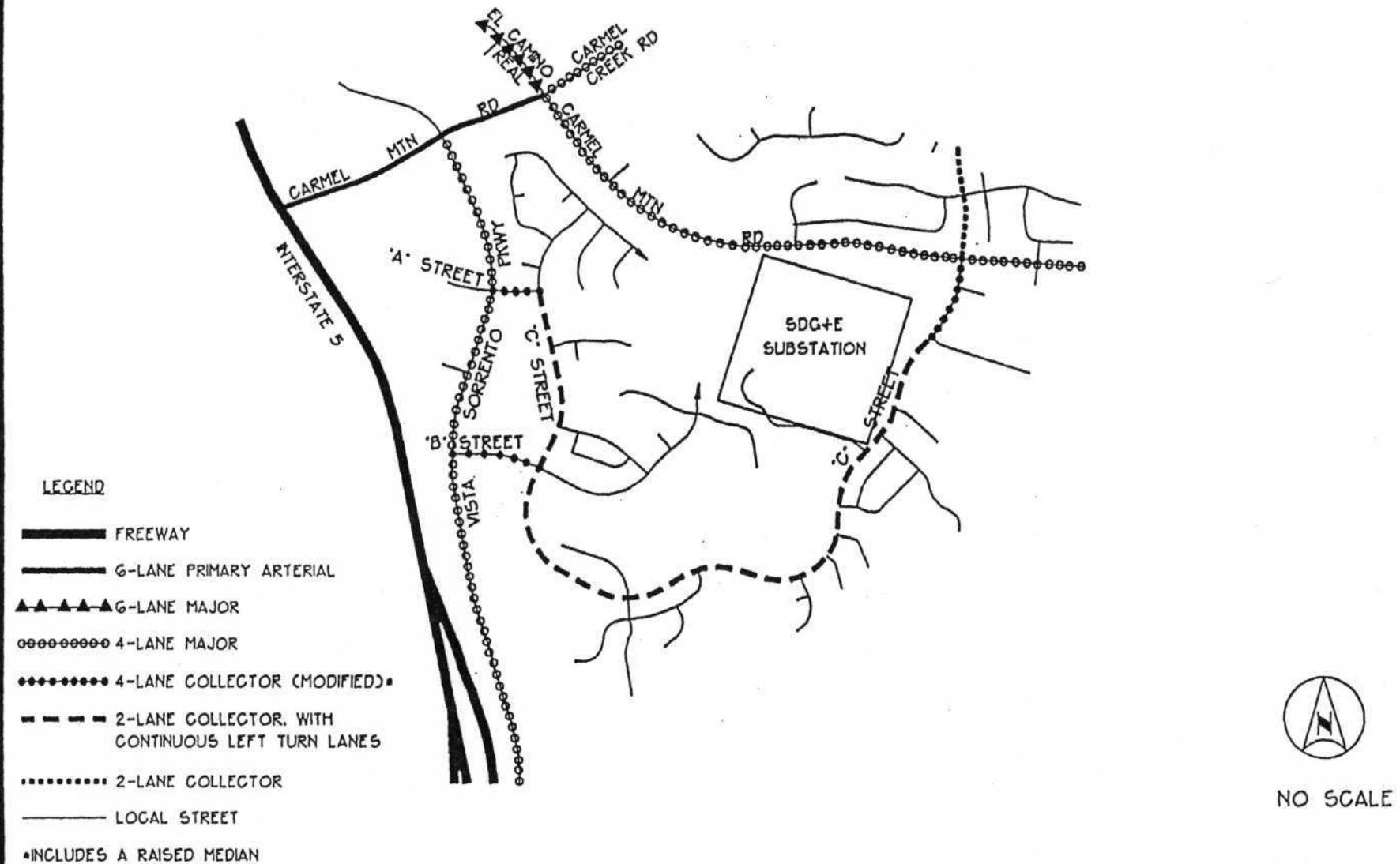
##### 3.1.2 FUTURE INTERSECTION CONFIGURATIONS

Kimley-Horn developed lane configurations for future intersections based on anticipated travel patterns. At the Carmel Mountain Road intersection with the access road serving the multi-family development on the north side of Carmel Mountain Road south of Carmel Creek Road (i.e., TAZ 722), traffic operations will be channelized as shown in previously-referenced Figure 3.1-2. The configuration shown will serve as a temporary refuge/acceleration lane for southbound left-turning vehicles. Figure 3.1-2 presents the lane configurations of the 12 intersections analyzed in this study.

##### 3.1.3 BICYCLE ROUTES

Figure 3.1-3 depicts the location of bicycle routes within the Torrey Hills development. These routes were identified in consultation with City of San Diego staff and are generally consistent with the Pedestrian Circulation Plan contained in the Torrey Hills Planned Residential Development/Planned Industrial Development Design Guidelines and Development Standards (June, 1995).

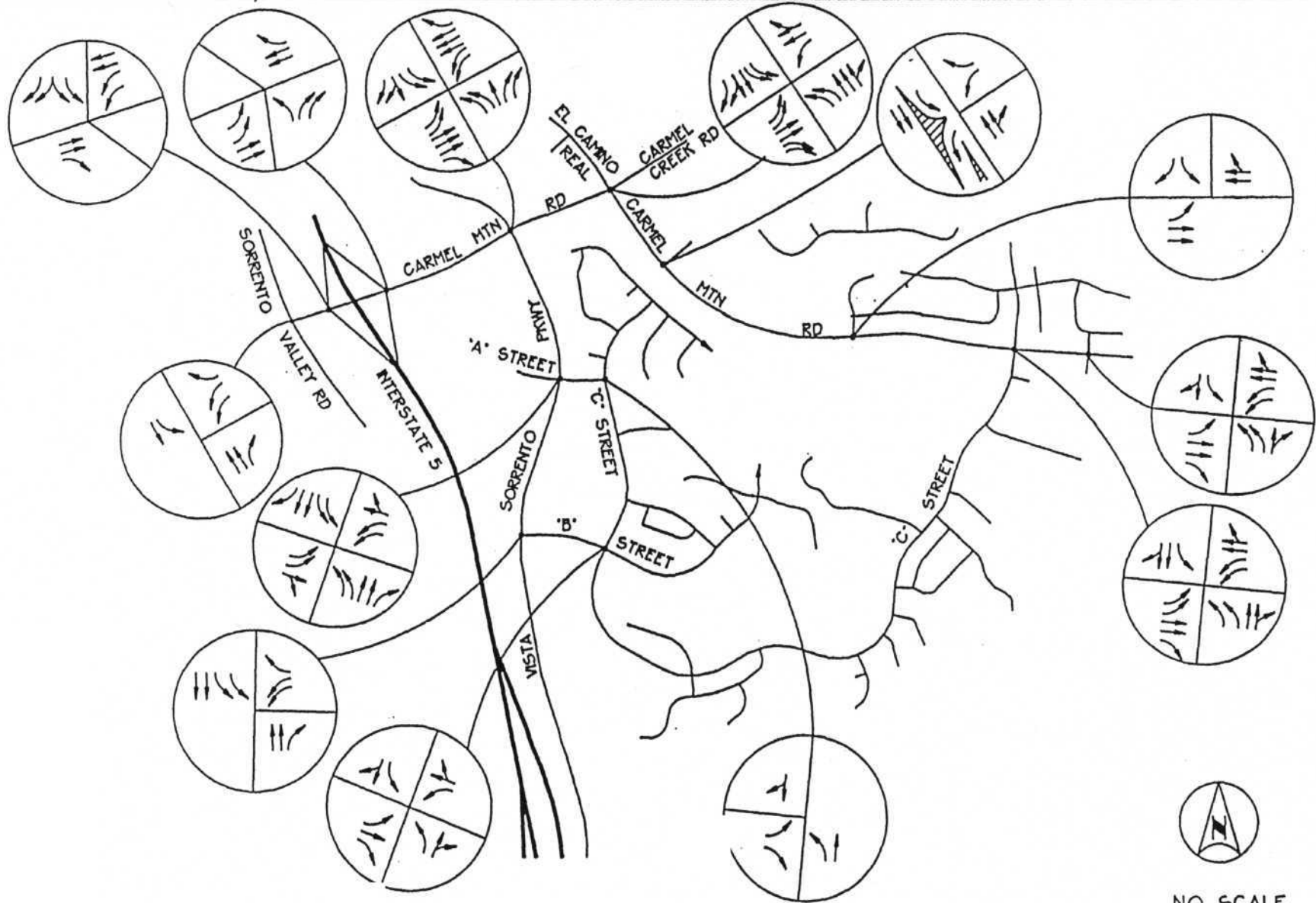




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## TORREY HILLS PROPOSED STREET CLASSIFICATION

FIGURE 3.1-1



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# TORREY HILLS INTERSECTION LANE CONFIGURATIONS

FIGURE 3.1-2



### 3.2 FORECAST TRAFFIC VOLUMES

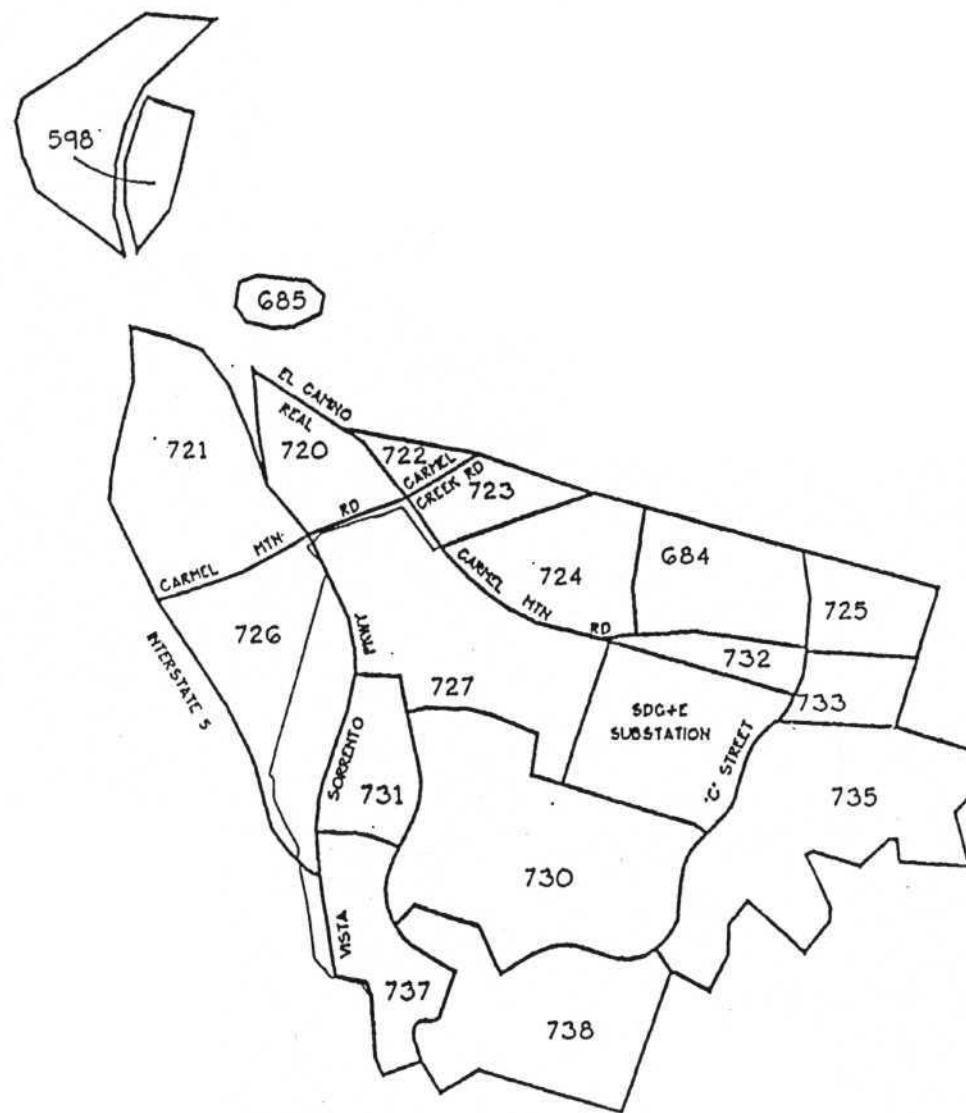
Forecast traffic volumes were obtained using the regional transportation demand forecast model developed and maintained by the San Diego Association of Governments (SANDAG). Kimley-Horn developed model inputs for a project-specific travel forecast. This forecast considers the proposed project and the latest development proposals in the Carmel Valley community plan area. This forecast, which was developed in consultation with the City, assumes that Carmel Creek Road will connect to SR-56 in Neighborhood 8A. A separate evaluation of this issue is being reviewed as part of the update to the Carmel Valley Neighborhood 8A Specific Plan. The model is based on complete buildout of the Sorrento Hills community planning area and the surrounding area and year 2010 projections of population and employment in the San Diego region. The model reflects the Torrey Hills land uses as currently proposed, which have less intense trip generation characteristics than the approved plan. The following subsections summarize the key steps in developing the forecast.

#### 3.2.1 PROJECT TRAFFIC GENERATION

Sorrento Hills Community land uses were grouped into similarly-sized geographic subunits, known as Traffic Analysis Zones (TAZs). Figure 3.2-1 depicts TAZ boundaries for the entire Sorrento Hills Community. Trip generation rates developed by the City of San Diego were then used to calculate the number of trips generated by all Sorrento Hills land uses based on land use types and intensities. The "cumulative" traffic generation rate which represents the amount of traffic that is expected to be added to the roadway system (i.e., driveway traffic minus "pass-by" traffic), which was used in this evaluation.

Table 3.2-1 summarizes Sorrento Hills traffic generation. In accordance with City of San Diego direction, this study analyzes traffic conditions associated with cumulative trip generation, because this condition reflects the addition of new traffic to the street system. As shown in Table 3.2-1, the Community (comprised primarily of the Torrey Hills project) will generate 65,123 daily trips, including 6,374 in the morning peak hour and 7,853 in the afternoon peak hour. The proposed project will have a better balance of inbound/outbound peak hour trips than the approved Community Plan. This is particularly true in the afternoon peak hour, where 37 percent of all trips are inbound (compared to 34 percent in the approved plan). This is due to the mix of proposed land uses. Whereas the approved plan provided for more intensive industrial uses which would generate heavy outbound traffic volumes in the afternoon peak hour, proposed land uses would have a mix of land uses which, when combined, would generate a more balanced split on inbound and outbound traffic. This balance will reduce the congestion typically associated with highly concentrated directional travel.

Traffic Analysis Zone 733, located at the southeast corner of the Carmel Mountain Road/"C" Street, will generate 8,640 daily trips. This neighborhood commercial center will serve the needs of the Sorrento Hills Community, as well as those of the Carmel Valley (South) Community and Future Urbanizing Area (FUA) Subarea V. Nearly all of these trips are "captured" within



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# TORREY HILLS TRAFFIC ANALYSIS ZONE

FIGURE 3.2-1

TABLE 3.2-1  
TORREY HILLS DAILY AND 'PEAK HOUR TRIP GENERATION  
SUBTOTALLED BY TRAFFIC ANALYSIS ZONE (CUMULATIVE RATE FOR RETAIL USES)

TAZ	LAND USE	AMOUNT	DAILY TRIP RATE	ADT*	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
					TOTAL	IN	OUT	TOTAL	IN	OUT
598	Office/Corporate	440,066 SF	15 /KSF	6,601	990	891	99	990	99	891
598	Visitor Serving Comm.	36,580 SF	20 /KSF	732	110	99	11	110	11	99
				7,333	1,100	990	110	1,100	110	990
684	SF 4,000	120 DU	10 /DU	1,200	96	19	77	120	84	36
684	SF 5,000	35 DU	10 /DU	350	28	6	22	35	25	11
				1,550	124	25	99	155	109	47
685	Single-Family Dwelling	2 DU	10 /DU	20	2	0	1	2	1	1
720	Office	210,000 SF	20 /KSF	4,200	546	491	55	588	118	470
721	Office	210,000 SF	20 /KSF	4,200	546	491	55	588	118	470
721	Single-Family Dwelling	121 DU	10 /DU	1,210	97	19	77	121	85	36
721	Industrial	120,000 SF	15 /KSF	1,800	198	178	20	216	43	173
721	Industrial	42,070 SF	15 /KSF	631	69	62	7	76	15	61
				7,841	910	751	159	1,001	261	740
722	Flats (MF)	88 DU	8 /DU	704	56	11	45	70	49	21
723	Flats (MF)	262 DU	8 /DU	2,096	168	34	134	210	147	63
724	Courtyard Dwelling (SF)	125 DU	10 /DU	1,250	100	20	80	125	88	38
724	SF 5,000	35 DU	10 /DU	350	28	6	22	35	25	11
				1,600	128	26	102	160	112	48
725	SF 5,000	85 DU	10 /DU	850	68	14	54	85	60	26
726	Industrial	237,930 SF	15 /KSF	3,569	393	353	39	428	86	343
726	Office/Industrial	270,000 SF	20 /KSF	5,400	702	632	70	756	151	605
726	Support Commercial	40,000 SF	72 /KSF	2,880	115	69	46	317	158	158
726	Day Care	3,000 SF	70 /KSF	210	40	20	20	38	19	19
				12,059	1,250	1,074	175	1,539	414	1,125
727	SF 5,000	135 DU	10 /DU	1,350	108	22	86	135	95	41
727	SF Shallow	80 DU	10 /DU	800	64	13	51	80	56	24
				2,150	172	34	138	215	151	65
730	Townhouse	140 DU	8 /DU	1,120	90	18	72	112	78	34
730	SF 4,000	140 DU	10 /DU	1,400	112	22	90	140	98	42
730	Townhouse Flat	200 DU	8 /DU	1,600	128	26	102	160	112	48
				4,120	330	66	264	412	288	124
731	Elementary School	4 AC	60 /AC	240	62	37	25	12	4	8
731	Health Club	20,000 SF	45 /KSF	900	36	22	14	81	49	32
731	Park	12 AC	50 /AC	600	24	12	12	48	24	24
				1,740	122	71	51	141	76	65
732	Neighborhood Commer.	5,000 SF	72 /KSF	360	14	9	6	40	20	20
733	Neighborhood Commer.	110,000 SF	72 /KSF	7,920	317	190	127	871	436	436
735	Flats	300 DU	8 /DU	2,400	192	38	154	240	168	72
735	Townhouse Flats	190 DU	8 /DU	1,520	122	24	97	152	106	46
735	SF 4,000	165 DU	10 /DU	1,650	132	26	106	165	116	50
735	SF 4,000	15 DU	10 /DU	150	12	2	10	15	11	5
				5,720	458	92	366	572	400	172
737	Office	190,000 SF	20 /KSF	3,800	494	445	49	532	106	426
738	SF 5,000	40 DU	10 /DU	400	32	6	26	40	28	12
738	SF 5,000	70 DU	10 /DU	700	56	11	45	70	49	21
				1,100	88	18	70	110	77	33
TOTALS				65,123	6,374	4,466	1,908	7,853	2,860	4,993

\* Average Daily Traffic Volume

c11:123r5w\programs\09500402.wk4



Sorrento Hills, Carmel Valley, and FUA Subarea V communities and would have minimal regional transportation impacts. The trip generation characteristics of this TAZ are therefore somewhat overstated.

### **3.2.2 PROJECT TRAFFIC DISTRIBUTION AND ASSIGNMENT**

Project-related traffic volumes on the street system shown on previously-referenced Figure 3.2-1 were estimated using a select zone run of the SANDAG model. Figure 3.2-2 presents total project volumes on study area roadways as well as the percentage of total project traffic on each segment. Carmel Mountain Road between Vista Sorrento Parkway and the I-5 northbound ramps will accommodate nearly 22,000 project-related trips, or 34 percent of total project-generated traffic. Although the project traffic represents the greatest portion of total forecast traffic on most links, some segments, including Carmel Mountain Road and Vista Sorrento Parkway, will have a significant amount of non-project traffic on them. These volumes represent regional traffic entering or passing through Sorrento Hills.

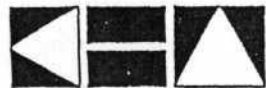
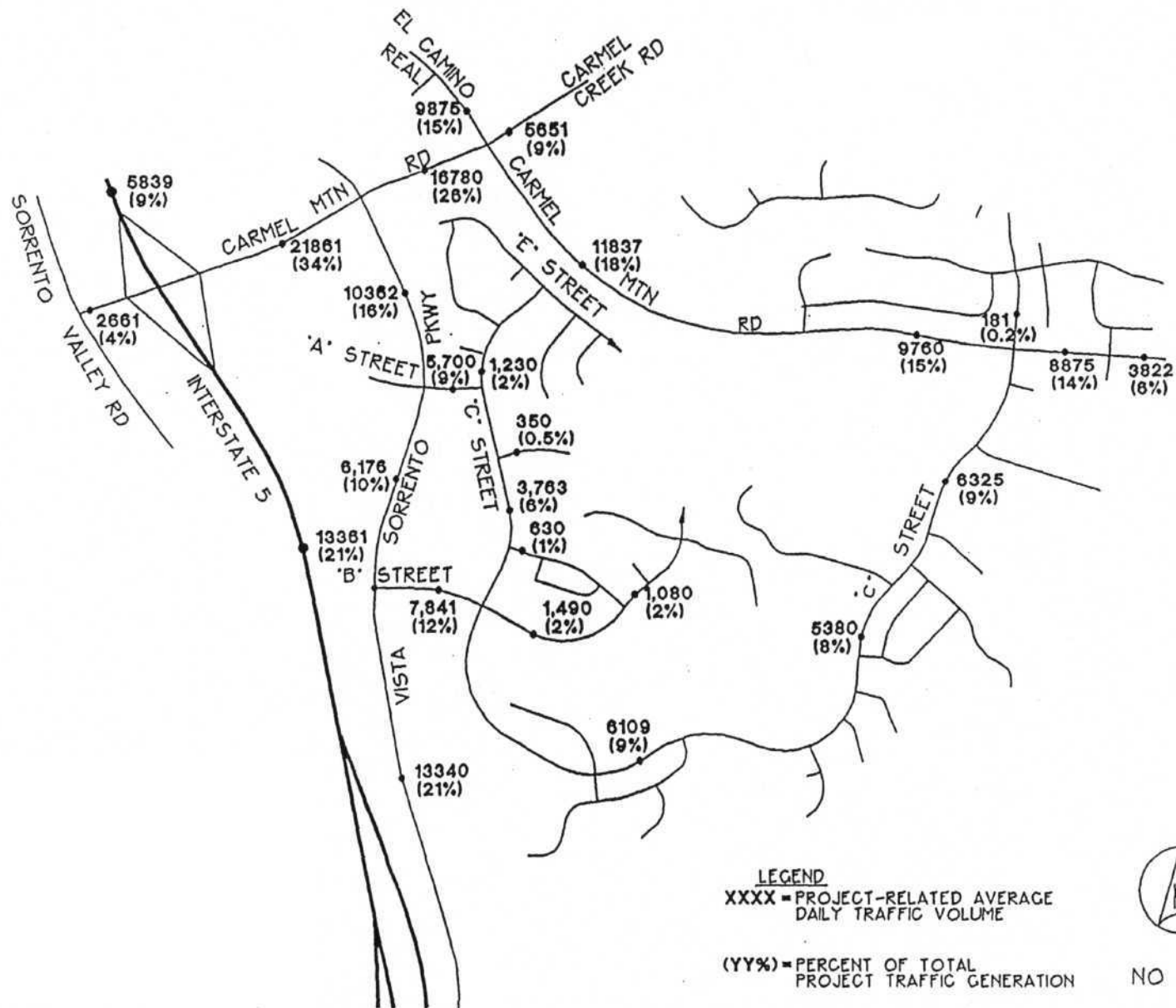
A cordon analysis was conducted in order to estimate the amount of project-related traffic "captured" within the site. This analysis indicated that 23 percent of project traffic remained within the Sorrento Hills area, reflecting the project's balance of residential, commercial and industrial uses. This balance of land use types reduces the amount of project traffic contributed to the regional transportation network.

### **3.2.3 FORECAST DAILY ROADWAY SEGMENT VOLUMES**

Figure 3.2-3 depicts forecast daily traffic volumes on Sorrento Hills streets. As shown in this figure, Carmel Mountain Road will have an ADT volume of 45,000 vehicles per day between Vista Sorrento Parkway and El Camino Real. On "C" Street, there will be an ADT volume of 10,000 east of "B" Street. South of Carmel Mountain Road, the ADT on "C" Street will be 8,000 vehicles per day.

### **3.2.4 FORECAST PEAK HOUR INTERSECTION TURNING MOVEMENT VOLUMES**

Kimley-Horn developed peak hour turning movement volumes for the September, 1994 study based on the land uses then proposed. As discussed previously, the approved community plan generates 6,800 more daily trips than the current proposal. The peak hour volumes analyzed in the September, 1994 study were adjusted manually to reflect reductions due to the less intensive trip generation characteristics of the current proposal, and to reflect changes to the peak hour directional distribution of project traffic. Figure 3.2-4 presents these volumes.

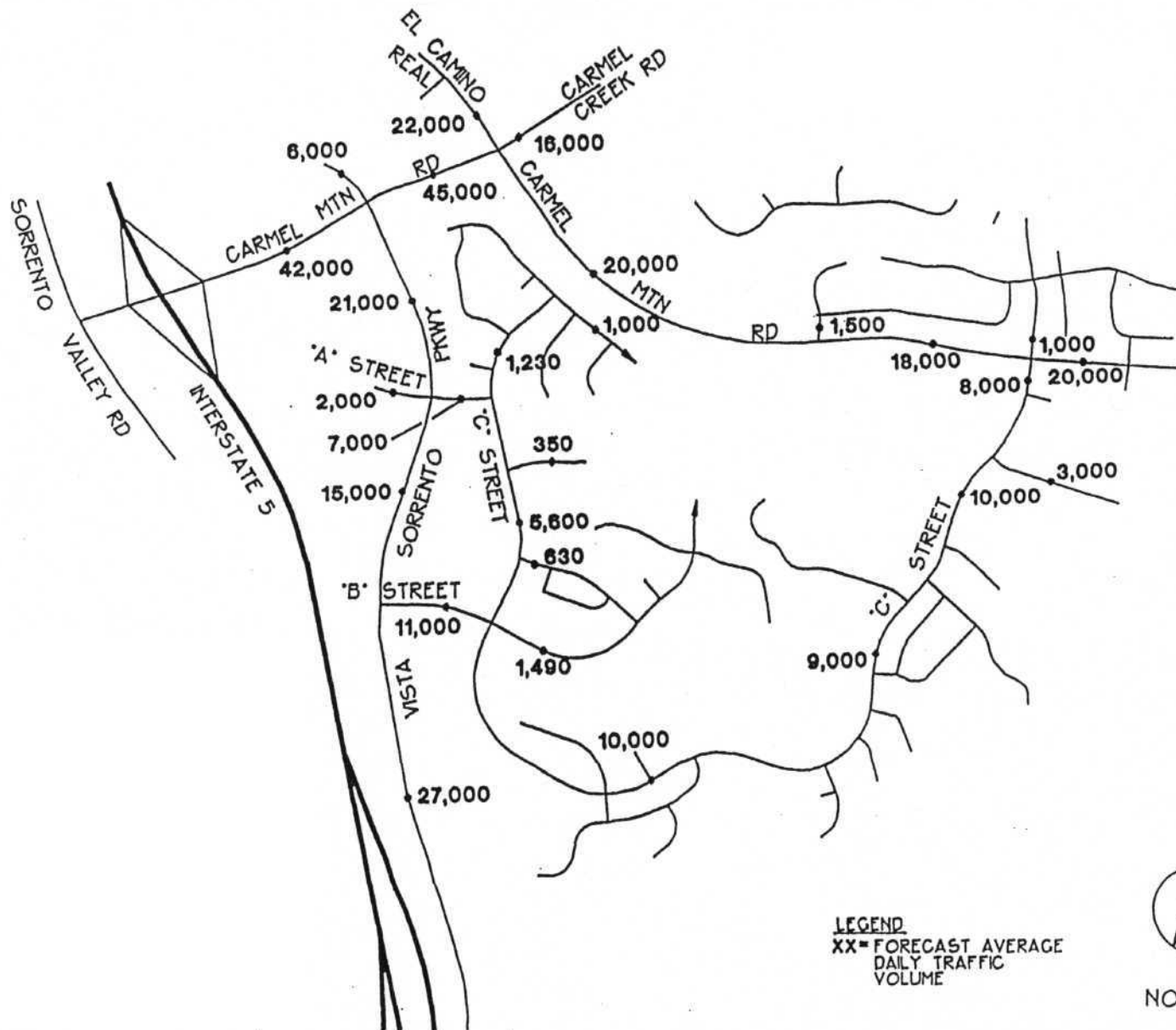


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TORREY HILLS  
PROJECT TRAFFIC ASSIGNMENT  
(actual + percent of total project traffic)

FIGURE 3.2-2





LEGEND  
XX = FORECAST AVERAGE  
DAILY TRAFFIC  
VOLUME



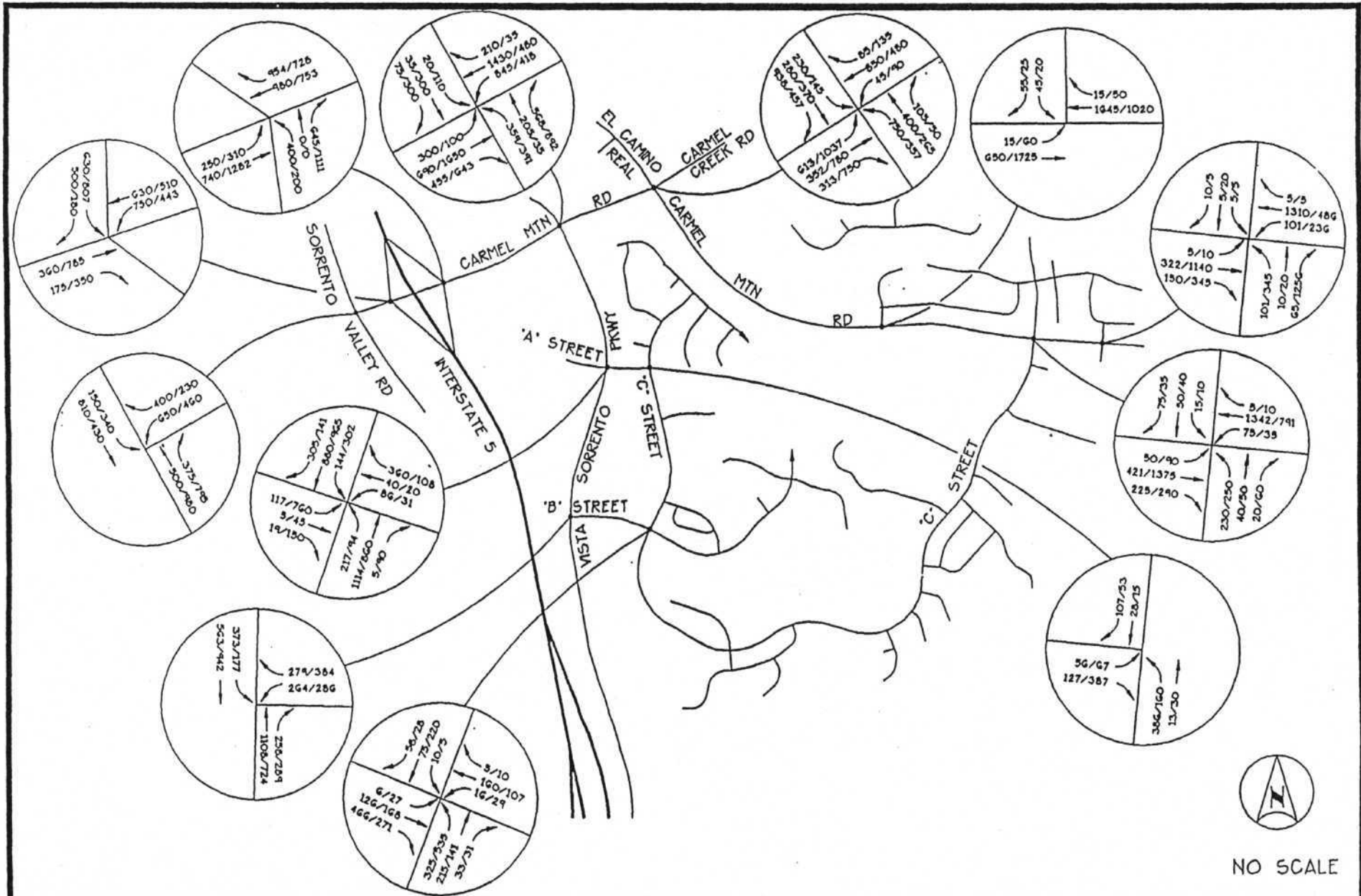
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TORREY HILLS  
YEAR 2010 FORECASTED DAILY TRAFFIC VOLUMES

FIGURE 3.2-3



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TORREY HILLS  
YEAR 2010 AM/PM PEAK HOUR TURNING MOVEMENT VOLUMES

FIGURE 3.2-4

### **3.2.4.1 TRAFFIC SIGNAL WARRANT ANALYSIS**

The need for traffic signal installation at the Carmel Mountain Road/"HH" Street and "A" Street/"C" Street was analyzed using Caltrans' daily, peak hour and systems warrants. Appendix C contains warrant analysis worksheets documenting this analysis. It was found that daily and peak hour traffic volumes at the "A" Street/"C" Street intersection do not justify installation of traffic signal control. However, the systems warrant is met. At the Carmel Mountain Road/"HH" Street intersection, the morning peak hour warrant is satisfied, but the afternoon and daily warrants are not met as is the systems warrant. Because the Carmel Mountain Road/"HH" Street intersection meets the morning peak hour warrant, a signal is assumed at this location. Although no volume warrants are met at "A" Street/"E" Street, a signal may be desired at this location to regulate flow along the short "A" Street segment between Vista Sorrento Parkway and "C" Street. Signalization should be considered at such time it is warranted by traffic volumes.

## **3.3 ANALYSIS OF LONG-TERM FUTURE TRAFFIC CONDITIONS**

### **3.3.1 LEVEL OF SERVICE METHODOLOGY**

Level of Service (LOS) is a qualitative measure used to describe the condition of traffic flow and the motorist's perception of roadway performance. LOS is expressed using a letter designation ranging from A to F, with A representing the best operating conditions and F being the worst. Level of Service C is the LOS typically used as a design standard applied to newly developing areas; while LOS D is considered to be an acceptable operating condition by most jurisdictions, including the City of San Diego. Level of Service C is characterized by stable flow and the point at which maneuverability and speed and motorist comfort and convenience begin to decline noticeably. Level of Service D is an unstable flow condition wherein delays become extensive and the effects of congestion on speed and maneuverability become more noticeable.

### **3.3.2 DAILY ROADWAY SEGMENT CAPACITY ANALYSIS**

The forecast daily traffic volumes presented in previously-referenced Figure 3.2-3 were compared to the daily roadway segment LOS thresholds established by the City of San Diego for the appropriate street classification. Table 3.3-1 summarizes the results of this comparison. As shown in this table, all but two street segments are characterized by good LOS C conditions under long-term future conditions. However, these two segments will most likely operate at acceptable levels of service.

"C" Street to the east of "B" Street is expected to have a future traffic volume of 9,000 ADT, which is greater than the LOS C capacity for a two-lane collector with no fronting property (7,500 ADT). However, this roadway is proposed to be constructed as a 50-foot wide roadway to accommodate one travel lane in each direction plus a center turn lane. This cross section, while not in the adopted Street Design Manual, is included in the Draft Street Design Manual with a LOS C capacity of 10,000 ADT.

**TABLE 3.3-1  
STREET SEGMENT LEVELS OF SERVICE  
LONG-TERM FUTURE (YEAR 2010) CONDITION**

STREET	SEGMENT	STREET CLASSIFICATION <sup>1</sup>	DAILY TRAFFIC VOLUME	LEVEL OF SERVICE <sup>2</sup> VOLUME <sup>3</sup>	LEVEL OF SERVICE
Carmel Mountain Rd.	I-5 - Vista Sorrento Pkwy.	6-Lane Prime	42,000	50,000	C
	Vista Sorrento Pkwy. - El Camino Real	6-Lane Prime	45,000	50,000	C
	West of El Camino Real	4-Lane Major	20,000	30,000	B
	West of "C" St.	4-Lane Major	18,000	30,000	B
	East of "C" St.	4-Lane Major	20,000	30,000	B
Vista Sorrento Parkway	Carmel Mountain Rd. - "A" St.	4-Lane Major	21,000	30,000	B
	"A" St. - "B" St.	4-Lane Major	15,000	30,000	B
	South of "B" St.	4-Lane Major	27,000	30,000	C
"A" Street	Vista Sorrento Pkwy. - "C" St.	4-Lane Collector <sup>3</sup>	7,000	15,000	B
"B" Street	Vista Sorrento Pkwy. - "C" St.	4-Lane Collector <sup>3</sup>	11,000	15,000	C
	East of "C" St.	2-Lane Collector	1,490	7,500	A
"C" Street	"A" St. - "B" St.	2-Lane Collector <sup>5</sup>	5,600	7,500	C
		2-Lane Collector <sup>6</sup>	5,600	10,000	B
	South of "EE" St.	2-Lane Collector <sup>6</sup>	9,000	7,500	D
		2-Lane Collector <sup>6</sup>	9,000	10,000	C
	South of Carmel Mountain Rd.	4-Lane Collector <sup>3</sup>	8,000	15,000	C
		4-Lane Major <sup>4</sup>	8,000	30,000	A
El Camino Real	North of Carmel Mountain Rd.	6-Lane Major	22,000	40,000	B

<sup>1</sup> Community Plan street classification.

<sup>2</sup> Based on City of San Diego traffic volume and level of service standards given in the Traffic Impact Study Manual, August, 1993.

<sup>3</sup> Modified 4-Lane Collector with raised median. Adopted LOS C threshold of 15,000 expected to increase to 20,000 ADT per City research and recommendations in Draft Street Design Manual (6/93).

<sup>4</sup> 4-Lane Major with raised median

<sup>5</sup> With continuous center left turn lane. Classification does not exist in Adopted Street Design Manual.

<sup>6</sup> LOS threshold per Draft Street Design Manual

### 3.3.3 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

The forecasted peak hour intersection turning movement volumes shown in previously-referenced Figure 3.2-4 were analyzed based on the intersection lane configurations discussed in previous sections. For this analysis, Kimley-Horn used the Highway Capacity Software (HCS) analysis program, release 2 (October, 1994). The City of San Diego requires HCS procedures for analyzing signalized intersections, and this package provides a more accurate estimate of intersection LOS than the Intersection Capacity Utilization (ICU) methodology used in previous studies.

Table 3.3-2 presents the results of the intersection capacity analysis. As shown in this table, all intersections will be characterized by good LOS C or better conditions during both peak hours analyzed, with the exception of the Carmel Mountain Road/El Camino Real/Carmel Creek Road intersection, which experiences LOS D during both peak hours. (Refer to Appendix C for worksheets documenting this analysis.) Level of Service C is typically considered the minimum performance standard for intersections in newly-developing areas in San Diego, with LOS D being considered where extensive improvements would otherwise be needed. The Carmel Mountain Road/El Camino Real/Carmel Creek Road intersection is a key location because it accommodates trips to I-5 that originate in the Torrey Hills area and in other communities lying to the north and east. It also provides an alternate route for north/south travel bypassing I-5 (i.e., via Vista Sorrento Parkway and El Camino Real.) In addition, many trips to and from the shopping center located east of "C" Street will pass through this intersection. Because of its location, the intersection is expected to have heavy traffic volumes on all four legs, resulting in relatively high peak hour volumes. The "A" Street/"C" Street intersection was analyzed as both a signalized and stop-controlled intersection. It will be characterized by excellent LOS B or better conditions during both peak hours, whether signalized or not.

Appendix D contains excerpts of the September 24, 1994, traffic study depicting peak hour traffic volumes for intersections located south of Torrey Hills.

### 3.3.4 RAMP METERING ANALYSIS

Using procedures outlined by the City of San Diego, the impacts of metering the I-5/Carmel Mountain Road ramps were analyzed. The expected peak hour demand will be southbound in the morning peak hour and northbound in the afternoon peak hour. Table 3.3-3 presents the results of this analysis. Although the proposed project would add fewer trips to the interchange than the approved plan, and would therefore cause shorter queues and delays than the approved plan, it is assumed that Caltrans would adjust the meter timing at these ramps to balance with demand at other I-15 interchanges. For this reason, a standard delay was assumed and flow rates were adjusted accordingly. As shown in Table 3.3-3, use of standard 15 minute delay for each ramp results in a total 4,725 foot queue in the morning peak hour and a total queue of 5,325 feet in the afternoon peak hour.



TABLE 3.3-2  
INTERSECTION LEVEL OF SERVICE  
LONG-TERM FUTURE (YEAR 2010) CONDITION

SIGNALIZED INTERSECTIONS				
INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	DELAY <sup>1</sup> (sec/veh)	LOS <sup>2</sup>	DELAY <sup>1</sup> (sec/veh)	LOS <sup>2</sup>
Carmel Mountain Rd./Sorrento Valley Rd.	9.5	B	12.9	B
Carmel Mountain Rd./I-5 southbound ramps	12.4	B	14.6	B
Carmel Mountain Rd./I-5 northbound ramps	10.6	B	16.2	C
Carmel Mountain Rd./Vista Sorrento Pkwy.	21.7	C	23.5	C
Carmel Mountain Rd./El Camino Real/Carmel Creek Rd.	35.7	D	25.7	D
Carmel Mountain Road/"HH" Street	6.1	B	5.5	B
Carmel Mountain Rd./"C" St.	13.6	B	11.4	B
Carmel Mountain Rd./Shopping Ctr. Access	11.3	B	19.9	C
Vista Sorrento Pkwy./"A" St.	24.1	C	22.7	C
Vista Sorrento Pkwy./"B"	11.7	B	7.8	B
"A" Street/"C" Street (a)	9.4	B	4.5	A
"B" St./"C" St.	20.9	C	25.0	C
UNSIGNALIZED INTERSECTION				
INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	DELAY <sup>3</sup> (sec/veh)	LOS <sup>4</sup>	DELAY <sup>3</sup> (sec/veh)	LOS <sup>4</sup>
"A" St./"C" St. (b)	3.2	A	3.2	A

1. Average stopped delay per vehicle in seconds
  2. Level of service was determined using methods described in Chapter 9 of the Highway Capacity Manual
  3. Average total delay, in seconds
  4. Level of service was determined using methods described in Chapter 10 of the Highway Capacity Manual
  - (a) Assuming signalization
  - (b) Assuming stop control
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**TABLE 3.3-3  
RAMP METERING ANALYSIS RESULTS**

LOCATION	PEAK	PROPOSED PROJECT				
		DEMAND D	FLOW F	EXCESS DEMAND E	DELAY (MIN)	QUEUE Q (FT)
I-5/Carmel Mtn. Rd.	AM Southbound	925	736	189	15	4725
I-5 Carmel Mtn. Rd.	PM Northbound	1038	825	213	15	5325

D = peak hour demand expected to use the on-ramp

F = peak hour capacity to be processed by ramp meter rate

$E = D - F$

$DELAY = (E/F) * 60$  minutes per hour

$Q = E * 25$  feet per vehicle

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### **3.4 COMMERCIAL CENTER ACCESS**

The proposed commercial center to be located in TAZ 732 will take its primary access via a signalized driveway on Carmel Mountain Road, located east of the Carmel Mountain Road/"C" Street intersection. Since the "C" Street intersection with Carmel Mountain Road has shifted to the west, when compared to its location in the adopted Sorrento Hills Community Plan, spacing between this signal, the proposed shopping center signal and the proposed signal to the east (in the Carmel Valley Community) will be adequate. Secondary access will be provided via a connection to "C" Street south of Carmel Mountain Road. Analysis of forecasted peak hour turning movement volumes exiting the commercial center's signalized driveway on Carmel Mountain Road indicated that the south leg of the intersection should provide the following lane configuration:

- Two northbound left turn lanes
- One shared through/right turn lane

In evaluating the access to this site, driveway rates were used. Retail sites typically have about 40 percent of their driveway trips occurring as pass-by trips with the remaining 60 percent of their driveway trips being "cumulative" trips (i.e., new trips). While the pass-by trips do not impact area-wide facilities, they do have localized impacts on site access points.

### **3.5 SUMMARY OF TRANSPORTATION FACILITY IMPROVEMENTS**

Table 3.5-1 lists the transportation improvements to be required in the project vicinity. A number of the transportation improvements have been constructed or are being constructed. This table was developed based on the findings of the current study for facilities within the Torrey Hills area and on the conclusions of the September 29, 1994, study for facilities located to the south of Torrey Hills.



**TABLE 3.5-1  
SUMMARY OF TRANSPORTATION IMPROVEMENTS**

Location	Improvement (a)	Status (1/19/96)
Carmel Mountain Road		
I-5 - El Camino Real	Construct as six lane primary arterial	Completed
El Camino Real - E. Project Boundary	Construct as four lane major	Bonded for but not constructed
Vista Sorrento Parkway		
Carmel Mountain Rd. - Sorrento Valley Blvd.	Construct as four lane major	To be bonded for and constructed by project
"A" Street	Construct as four lane collector	To be bonded for and constructed by project
"B" Street	Construct as four lane collector	To be bonded for and constructed by project
"C" Street		
Carmel Mountain Rd. - "GG" St.	Construct as four lane collector	To be bonded for and constructed by project
"GG" St. - "A" Street	Construct as two lane collector	To be bonded for and constructed by project
Carmel Mountain Rd./Sorrento Valley Rd.	Provide traffic signal	Under construction
Carmel Mountain Rd./I-5 southbound ramps	Provide traffic signal	To be provided under Sorrento Hills Development Agreement; secured by letters of credit
Carmel Mountain Rd./I-5 northbound ramps	Provide traffic signal	To be provided under Sorrento Hills Development Agreement; secured by letters of credit
Carmel Mountain Rd./Vista Sorrento Pkwy.	Provide traffic signal	Constructed
Carmel Mountain Rd./El Camino Real/Carmel Creek Rd.	Provide traffic signal	Constructed
Carmel Mountain Rd./"Z" Street	Provide traffic signal	To be bonded for and constructed by project
Carmel Mountain Rd./"C" Street	Provide traffic signal	To be bonded for and constructed by project
Carmel Mountain Rd./Shopping Ctr. Access	Provide traffic signal	To be bonded for and constructed by project
Vista Sorrento Pkwy./"A" Street	Provide traffic signal	Constructed
Vista Sorrento Pkwy./"B" Street	Provide traffic signal	To be bonded for and constructed by project
"B" St./"C" St.	Provide traffic signal	To be bonded for and constructed by project
"A" St./"C" St.	Provide traffic signal, when warranted	To be bonded for and constructed by project
Vista Sorrento Pkwy./Sorrento Valley Blvd. (b)	Provide traffic signal	Provide traffic signal
Sorrento Valley Blvd./Roselle St. (b)	Provide traffic signal	To be bonded for and constructed by project

(a) Refer to Figure 3.1-2 for Intersection lane geometrics

(b) Per Sept. 29, 1994 traffic study

## SECTION 4

### COMPARISON OF PROPOSED AND APPROVED PROJECTS

The following subsections present a comparison of proposed project and the approved project trip generation characteristics, daily and peak traffic conditions, and ramp metering results. As succeeding subsections will show, the proposed project will reduce the overall trip generation of the Sorrento Hills Community, provide for more internal capture of project-related trips, and have a better balance of inbound/outbound peak hour trips than the approved community plan.

#### 4.1 COMPARISON OF TRIP GENERATION

Table 4.1-1 presents a comparison of approved and proposed daily and peak hour trip generation characteristics based on the cumulative trip generation rate. As discussed in the previous section, the City of San Diego has indicated that use of the cumulative rate is appropriate for this traffic study. The September, 1994, Traffic Study calculated project trip generation assuming driveway rate of retail uses. The total daily traffic generation of 72,923 summarized in that study remains correct; however, in order to provide a valid comparison to the proposed project, the retail traffic generation was adjusted to reflect the cumulative rate.

Review of Table 4.1-1 indicates a significant reduction of proposed project-related as compared to the approved plan. The proposed project will generate 6,800 fewer daily trips than the approved plans, a reduction of 11 percent. In the morning peak hour, the proposed project will generate 1,600 fewer total trips than the approved plan. Afternoon peak hour traffic volumes will also be somewhat lower than the approved plan, and there will be a better balance between inbound and outbound trips during this period. These traffic generation benefits are due to the improved land use patterns of the proposed developments. As discussed in preceding sections, the project will contain lower density residential development, less industrial development and more retail development than the approved project. This substitution of land uses results in reductions in overall trip generation and improvements in inbound/outbound traffic balance.

#### 4.2 COMPARISON OF DAILY ROADWAY CAPACITY

Table 4.2-1 is a comparison of proposed and approved future daily traffic volumes. As shown in this table, the street classifications are somewhat different under the approved and proposed plans. With the proposed project, ADT volumes on some street segments will be lower, while others will be higher, most notably Carmel Mountain Road between I-5 and Vista Sorrento Parkway. This anomaly is due to the removal of a right-in/right-out driveway on the south side of Carmel Mountain Road between I-5 and Vista Sorrento Parkway, which attracts trips travelling west to south. This driveway was not provided with the proposed plan due to grading constraints. All street segments are characterized by good LOS C or better conditions under both the proposed and approved projects.

**TABLE 4.1-1**  
COMPARISON OF APPROVED AND PROPOSED PROJECT TRAFFIC GENERATION (CUMULATIVE RATE FOR RETAIL USES)

PROPOSED PROJECT									
LAND USE	AMOUNT	RATE	TOTAL ADT*	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
				TOTAL	IN	OUT	TOTAL	IN	OUT
Single-Family Dwelling	1334 DU	10 /DU	13,340	1,067	213	854	1,334	934	400
Multiple-Family Dwelling	770 DU	8 /DU	6,160	493	99	394	616	431	185
Office	950 KSF	20 /KSF	19,000	2,470	2,223	247	2,660	532	2,128
Industrial	400 KSF	15 /KSF	6,000	660	594	66	720	144	576
Park	16.2 AC	50 /AC	810	32	16	16	65	32	32
Retail	170 KSF	72 /KSF	12,240	490	294	196	1,346	673	673
Office/Corporate	440.066 KSF	15 /KSF	6,601	990	891	99	990	99	891
Visitor Serving	36.58 KSF	20 /KSF	732	110	99	11	110	11	99
School	4 AC	60 /AC	240	62	37	25	12	4	8
<b>TOTALS</b>			<b>65,123</b>	<b>6,374</b>	<b>4,466</b>	<b>1,908</b>	<b>7,853</b>	<b>2,860</b>	<b>4,993</b>
APPROVED PROJECT (a)									
LAND USE	AMOUNT	RATE	TOTAL ADT*	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS		
				TOTAL	IN	OUT	TOTAL	IN	OUT
Single-Family Dwelling	252 DU	10 /DU	2,520	302	60	242	302	242	60
Multiple-Family Dwelling	2460 DU	8 /DU	19,680	1,574	315	1,260	1,574	1,102	472
Office	543.15 KSF	20 /KSF	10,863	1,521	1,369	152	1,521	304	1,217
Industrial	1883.8 KSF	15 /KSF	28,257	3,391	2,713	678	3,391	678	2,713
Park	10 AC	40 /AC	400	16	8	8	32	16	16
Retail	20 KSF	72 /KSF	1,440	58	35	23	158	79	79
Health Club	28 KSF	45 /KSF	1,260	50	30	20	113	68	45
Day Care	3 KSF	70 /KSF	210	40	20	20	38	19	19
Office/Corporate	440.066 KSF	15 /KSF	6,601	924	832	92	924	185	739
Visitor Serving	36.58 KSF	20 /KSF	732	59	12	47	73	51	22
<b>TOTALS</b>			<b>71,963</b>	<b>7,935</b>	<b>5,393</b>	<b>2,542</b>	<b>8,127</b>	<b>2,745</b>	<b>5,383</b>
<b>DIFFERENCE (PROPOSED - APPROVED)</b>			<b>(6,840)</b>	<b>(1,561)</b>	<b>(927)</b>	<b>(634)</b>	<b>(274)</b>	<b>116</b>	<b>(390)</b>
<b>PERCENT CHANGE</b>			<b>-11%</b>	<b>-24%</b>	<b>-21%</b>	<b>-33%</b>	<b>-3%</b>	<b>4%</b>	<b>-8%</b>

\* Average Daily Traffic

(a) Assuming the driveway rate for retail uses, the approved daily traffic generation is 72,923.

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**TABLE 4.2-1**  
**COMPARISON OF APPROVED AND PROPOSED PROJECT STREET SEGMENT LEVELS OF SERVICE**  
**LONG-TERM FUTURE (YEAR 2010) CONDITION**

STREET	SEGMENT	PROPOSED PROJECT			APPROVED PROJECT		
		STREET CLASSIFICATION	DAILY TRAFFIC	LEVEL OF SERVICE	STREET CLASSIFICATION	DAILY TRAFFIC	LEVEL OF SERVICE
Carmel Mountain Rd.	I-5 - Vista Sorrento Pkwy.	6-Lane Prime	42,000	C	6-Lane Prime	38,000	C
	Vista Sorrento Pkwy. - El Camino Real	6-Lane Prime	45,000	C	6-Lane Prime	43,000	C
	West of El Camino Real	4-Lane Major	20,000	B	6-Lane Major	22,000	B
	West of "C" Street	4-Lane Major	18,000	B	6-Lane Major	17,000	A
Vista Sorrento Pkwy.	Carmel Mountain Rd. - "A" St.	4-Lane Major	21,000	B	4-Lane Major	22,000	C
	"A" St. - "B" St.	4-Lane Major	15,000	B	4-Lane Major	18,000	B
	South of "B" St.	4-Lane Major	27,000	C	4-Lane Major	24,000	C
"A" Street	Vista Sorrento Pkwy. - "C" St.	4-Lane Collector (a)	7,000	B	4-Lane Collector	12,575	C
"B" Street	Vista Sorrento Pkwy. - "C" St.	4-Lane Collector (a)	11,000	C	4-Lane Collector	9,420	B
"C" Street	South of Carmel Mountain Rd.	4-Lane Collector (a)	8,000	B	4-Lane Major	15,000	A
El Camino Real	North of Carmel Mountain Rd.	6-Lane Major	22,000	B	6-Lane Major	22,000	B

(a) Modified 4-Lane Collector with raised median

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### 4.3 COMPARISON OF PEAK HOUR INTERSECTION CAPACITY

Table 4.3-1 is a comparison of morning and afternoon peak hour LOS for both the proposed and approved plans. Approved project LOS is shown in two sets of columns, one indicating results using the modified ICU method, the other using the unmodified approach. (As discussed in the preceding section, intersection LOS for the proposed project was done using the HCS in accordance with City of San Diego standards.) The City recommended the modified ICU approach in response to analysis that indicated that the unmodified method understated intersection congestion and, therefore, provided overly optimistic LOS. The City's *Traffic Impact Study Manual* (August, 1993) indicated that the previous practice of providing a minimum of .1 for all conflicting movement volume-to-capacity ratios should be discontinued. Instead, an overall efficiency loss factor of .1 should be added to the preliminary ICU calculation. This procedure, together with revisions to the LOS threshold scale, resulted in a modified procedure yielding more realistic LOS results (i.e., they are more consistent with HCS results). Appendix C contains an excerpt from the City's *Traffic Impact Study Manual* describing the modified procedures.

The far right column (i.e., approved plan with unmodified ICU) summarizes the results contained the September 29, 1994 report. When the same approved project peak hour intersection turning movement volumes were reanalyzed using the City's modified approach, the LOS at each location deteriorates. Direct comparison of proposed project HCS results to approved project modified ICU results indicate substantially improved peak hour intersection LOS at all locations under the proposed project, with the exception of the Carmel Mountain Road/Shopping Center Access intersection. Although this intersection declines under the proposed project, it is still characterized by good LOS C or better conditions.

### 4.4 COMPARISON OF RAMP METERING ANALYSIS

Table 4.4-1 presents a comparison of approved and proposed project ramp metering analysis results. As shown in this table, project-related traffic will generate somewhat less demand during both peak hours as compared to the approved project, resulting in reduced queuing. As discussed in Section 3.3, the reduced demand would still result in delays of about 15 minutes at the ramp meters, although queue lengths would be reduced by 300 feet in the morning at the southbound on-ramp and by about 900 feet in the afternoon peak hour at the northbound on-ramp.



**TABLE 4.3-1**  
**COMPARISON OF APPROVED AND PROPOSED PROJECT INTERSECTION LEVELS OF SERVICE**  
**LONG-TERM FUTURE (YEAR 2010) CONDITION**

INTERSECTION	PROPOSED PROJECT		APPROVED PROJECT: MODIFIED ICU (a)		APPROVED PROJECT: UNMODIFIED ICU (b)	
	AM LOS	PM LOS	AM LOS	PM LOS	AM LOS	PM LOS
Carmel Mountain Rd./Sorrento Valley Rd.	B	B	B	D	A	B
Carmel Mountain Rd./I-5 southbound ramps	B	B	C	D	B	B
Carmel Mountain Rd./I-5 northbound ramps	B	C	D	D	B	C
Carmel Mountain Rd./Vista Sorrento Pkwy.	C	C	D	D	C	C
Carmel Mountain Rd./El Camino Real/Carmel Creek Rd.	D	D	E	E	C	D
Carmel Mountain Rd./"C" St.	B	B	D	B	C	A
Carmel Mountain Rd./Shopping Center Access	B	C	B	B	A	A
Vista Sorrento Pkwy./"A" St.	C	C	D	E	D	D
Vista Sorrento Pkwy./"B" St.	B	A	D	D	C	C
"B" St./"C" St.	C	C	--	--	--	--

(a) Per City of San Diego standards, an efficiency loss factor of .1 was added to the overall ICU calculation, replacing the minimum of .1 for each movement. In addition, new LOS thresholds were specified, decreasing the number of intersections operating at LOS A and B.

(b) Using the outdated ICU methodology and LOS thresholds.

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**TABLE 4.4-1**  
**COMPARISON OF APPROVED AND PROPOSED PROJECT RAMP METERING ANALYSIS RESULTS**

LOCATION	PEAK	PROPOSED PROJECT					APPROVED PROJECT				
		DEMAND D	FLOW F	EXCESS DEMAND E	DELAY (MIN)	QUEUE Q (FT)	DEMAND D	FLOW F	EXCESS DEMAND E	DELAY (MIN)	QUEUE Q (FT)
I-5/Carmel Mtn. Rd.	AM Southbound	925	736	189	15	4725	985	788	197	15	4925
I-5 Carmel Mtn. Rd.	PM Northbound	1038	825	213	15	5325	1172	938	234	15	5850

D = peak hour demand expected to use the on-ramp  
F = peak hour capacity to be processed by ramp meter rate  
 $E = D - F$   
 $\text{DELAY} = (E/F) * 60$  minutes per hour  
 $Q = E * 25$  feet per vehicle

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## SECTION 5

### PROJECT PHASING

#### 5.1 STATUS OF PHASING PLAN IMPROVEMENTS

The project's transportation phasing plan is shown as Table 5.1-1. This plan is identical to the approved phasing plan for the project (updated in December, 1994) with the exception Phase 5. (Refer to Appendix D for a copy of the approved phasing plan.)

Currently, the first eleven projects listed in the approved transportation phasing plan have been completed or assured to the satisfaction of the City Engineer. The phasing plan allows for development generating a total of about 26,260 Average Daily Traffic. After the remaining components of improvement twelve are completed, the development will be allowed to proceed to a level of about 46,700 ADT.

The Phase 5 threshold has been increased from 41,115 Average Daily Traffic (ADT) to 46,708 ADT. This increase is due to the addition of a 110,000 square foot neighborhood retail center at the intersection of Carmel Mountain Road and "C" Street. While this center generates approximately 8,640 cumulative trips, most of these trips would serve residences in Sorrento Hills, Carmel Valley (South) and the future urbanizing area (Subarea V). As a result, these trips would not impact regional improvements contained in the transportation phasing plan. For example, trips between the above mentioned residential areas and the neighborhood shopping center would not travel on I-5, SR-56 or Vista Sorrento Parkway. Associated with this change is a requirement that Carmel Mountain Road be extended to the eastern community plan boundary in Phase 5 (shown as improvement fourteen).

The changes to Phase 5 of the transportation phasing plan will most likely result in a reduction in regional traffic levels as compared to that anticipated in the approved plan.

**TABLE 5.1-1  
TORREY HILLS  
TRANSPORTATION PHASING PLAN**

PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS						TRAFFIC FACILITY IMPROVEMENTS TO BE ASSURED UNLESS OTHERWISE NOTED
					AM PEAK			PM PEAK			
					TOTAL	IN	OUT	TOTAL	IN	OUT	
1-4	Single-Family Dwelling	750 DU	10 /DU	7,500	600	120	480	750	525	225	(1) Complete circulation loop of four lanes of El Camino Real from Carmel Valley Road South to Carmel Mountain Road, and Carmel Mountain Road west to Sorrento Valley Road. Improvements to be as required by Tentative Tract Map. (2) Install traffic signal at El Camino Real and Carmel Valley Road. (3) Install two traffic signals on Carmel Valley Road at Interstate 5 Ramp Intersections. (4) Widen on-ramps and off-ramps at Interstate 5/Carmel Valley Road interchange. (5) Install traffic signal, Sorrento Valley Road and Carmel Mountain Road. (6) Perform revised computerized travel forecast in conjunction with North City West, to the satisfaction of the City Engineer. (7) CIP 62-099.4, Sorrento Valley Road - Sorrento Valley Blvd. to 3300 feet northerly (8) Widen Carmel Valley Road to six lanes from I-5 to the realigned El Camino Real. (9) Construct El Camino Real to six lanes from Carmel Valley Road south to Carmel Mountain Road. Construct Carmel Mountain Road to six lanes from El Camino Real west to Sorrento Valley Blvd. (10) CIP 63-032.0, Sorrento Valley Blvd. bridge over Los Penasquitos Channel. (11) CIP 63-304.0, Sorrento Valley Road - Sorrento Valley Blvd. to I-805. (12) Widen/construct Carmel Valley Road to six lanes from El Camino Real to 300 feet east of Carmel Country Road and with four lanes east to the North City West Boundary. Construct a four lane road from the North City West boundary to Interstate Route 15. (the latter is a regional transportation improvement) OR Construct direct freeway ramp connections (northbound offramp and southbound onramp) at Interstate Route 5 and Carmel Valley Road and widen I-5 between I-805 and Carmel Valley Road (regional transportation improvement)
	Multiple-Family Dwelling	340 DU	8 /DU	2,720	218	44	174	272	190	82	
	Office	312 KSF	20 /KSF	6,240	811	730	81	874	175	699	
	Industrial	292 KSF	15 /KSF	4,380	482	434	48	526	105	420	
	Park	16.2 AC	50 /AC	810	32	16	16	65	32	32	
	Retail	5 KSF	72 /KSF	360	14	9	6	40	20	20	
	Office/Corporate	267 KSF	15 /KSF	4,005	601	541	60	601	60	541	
	Visitor Serving	0 KSF	20 /KSF	0	0	0	0	0	0	0	
	School	4 AC	60 /AC	240	62	37	25	12	4	8	
	TOTALS				26,255	2,821	1,930	890	3,138	1,111	

PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS						TRAFFIC FACILITY IMPROVEMENTS TO BE ASSURED UNLESS OTHERWISE NOTED
					AM PEAK			PM PEAK			
					TOTAL	IN	OUT	TOTAL	IN	OUT	
5	Single-Family Dwelling	1215 DU	10 /DU	12,150	972	194	778	1,215	851	365	(13) Extend Carmel Mountain Road to eastern subdivision boundary. This improvement will be tied to the construction of the shopping center in the eastern portion of the project. (14) Widen /construct Carmel Valley Road to six lanes from El Camino Real to 300 feet east of Carmel Country Road and with four lanes east to the North City West boundary. Construct a continuous four lane road from the North City West boundary east to I-15. (the latter is a regional transportation improvement) AND Construct direct freeway ramp connections (northbound offramp and southbound onramp) at Interstate Route 5 and Carmel Valley Road and widen I-5 between I-805 and Carmel Valley Road (regional transportation improvement) AND Construct freeway ramps at Carmel Mountain Road and Interstate Route 5
	Multiple-Family Dwelling	650 DU	8 /DU	5,200	416	83	333	620	384	156	
	Office	500 KSF	20 /KSF	10,000	1,300	1,170	130	1,400	280	1,120	
	Industrial	292 KSF	15 /KSF	4,380	482	434	48	526	105	420	
	Park	16.2 AC	50 /AC	810	32	16	16	65	32	32	
	Retail	120 KSF	72 /KSF	8,640	346	207	138	950	475	475	
	Office/Corporate	303.4 KSF	15 /KSF	4,551	683	614	68	683	68	614	
	Visitor Serving	38.58 KSF	20 /KSF	772	110	89	11	110	11	99	
	School	4 AC	60 /AC	240	62	37	25	12	4	8	
	TOTALS				46,703	4,403	2,866	1,547	6,480	2,190	

PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS						TRAFFIC FACILITY IMPROVEMENTS TO BE ASSURED UNLESS OTHERWISE NOTED
					AM PEAK			PM PEAK			
					TOTAL	IN	OUT	TOTAL	IN	OUT	
6	Single-Family Dwelling	1334 DU	10 /DU	13,340	1,067	213	854	1,334	934	400	(15) Construct Vista Sorrento Parkway as a four lane major street between Sorrento Valley Blvd and Carmel Mountain Road. Extend Carmel Mountain Road from El Camino Real to the eastern community plan boundary.  (16) Construct subdivision improvements as required by phasing and the City Engineer.
	Multiple-Family Dwelling	650 DU	8 /DU	5,200	416	83	333	520	364	156	
	Office	745 KSF	20 /KSF	14,900	1,937	1,743	194	2,088	417	1,669	
	Industrial	292 KSF	15 /KSF	4,590	522	454	68	564	124	439	
	Park	16.2 AC	50 /AC	810	32	16	16	65	32	32	
	Retail	115 KSF	72 /KSF	8,280	331	199	132	911	455	455	
	Day Care (6)	3 KSF		0	0	0	0	0	0	0	
	Office/Corporate	440.066 KSF	15 /KSF	6,601	990	891	99	990	99	891	
	Visitor Serving	36.58 KSF	20 /KSF	732	110	99	11	110	11	99	
	School	4 AC	60 /AC	240	62	37	25	12	4	8	
TOTALS				64,693	6,468	3,736	1,732	6,691	2,440	4,160	

PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS					
					AM PEAK			PM PEAK		
					TOTAL	IN	OUT	TOTAL	IN	OUT
7	Single-Family Dwelling	1334 DU	10 /DU	13,340	1,067	213	854	1,334	934	400
	Multiple-Family Dwelling	770 DU	8 /DU	6,160	493	99	394	616	431	185
	Office	950 KSF	20 /KSF	19,000	2,470	2,223	247	2,660	532	2,128
	Industrial	400 KSF	15 /KSF	6,000	660	594	66	720	144	576
	Park	16.2 AC	50 /AC	810	32	16	16	65	32	32
	Retail	170 KSF	72 /KSF	12,240	490	294	196	1,346	673	673
	Day Care (6)	3 KSF		0	0	0	0	0	0	0
	Office/Corporate	440.066 KSF	15 /KSF	6,601	990	891	99	990	99	891
	Visitor Serving	36.58 KSF	20 /KSF	732	110	99	11	110	11	99
	School	4 AC	60 /AC	240	62	37	25	12	4	8
TOTALS				65,123	6,374	4,466	1,908	7,853	2,860	4,993

# NOTES:

- Improvements to be completed, under contract, bonded or scheduled in the City Capital Improvements Program, or programmed in the State Transportation Improvement Program to the satisfaction of the City Engineer before exceeding the allowable levels of development in the columns above.
- It should be noted that this plan is intended to serve as a guideline for sequential development of street improvements. Because the geographic order of development is not certain, it will be necessary to review annually and revise this phasing plan in order to reflect current land development proposals and actual trip generation rates and trip distribution.
- All streets within the boundaries of the Community Plan shall be improved to full width as part of the development on adjacent parcels. Traffic signals shall be constructed as required via the Tentative Tract Map.
- Total permitted ADT by land use can be adjusted so that ADT's are transferred from one land use to another so long as the listed total ADT's from all land use is not exceeded, subject to additional studies as required by the City Engineer. The additional studies must evaluate if the uses different from those assumed in this plan invalidate the ADT and/or peak hour traffic calculations and therefore, the phasing of transportation improvements.
- Thresholds for each section are governed by the issuance of building permits and not the recordation of final maps.
- The 3 KSF of Day Care is a component of the industrial uses in the project. Its traffic generation is included in the ind

## SECTION 6

### SUMMARY OF FINDINGS AND CONCLUSIONS

This study was prepared to analyze the traffic impacts of the proposed Torrey Hills project, which is to be located east of I-5 and south of SR-56 in Northwestern San Diego. The proposed project is the largest component of the approved Sorrento Hills Community Plan, and would consist of a mixture of residential, commercial, industrial, office, and other land uses. This report evaluated daily street segment and peak hour intersection traffic conditions for long-term future (year 2010) conditions and compared the results to those summarized in the traffic study for the approved community plan (Kimley-Horn and Associates, Inc., September 29, 1994). In addition to the above analysis, this study provides a project development phasing plan which is based on the trip generation characteristics of the project. The following paragraphs summarize the key findings and conclusions of the foregoing study.

- The project will generate 65,123 cumulative daily trips when fully built out, including 6,374 during the morning peak hour and 7,853 during the afternoon peak hour. The approved Sorrento Hills Community Plan would generate nearly 6,800 more daily trips (including 1,600 more during the morning peak hour alone) than proposed land uses.
- This disparity in approved and proposed trip generation characteristics is due to the mixture of land use types and intensities in the proposed plan. Proposed land uses feature a greater proportion of single-family dwelling units, as compared to multifamily residences, than the approved plan. Because of unconcentrated nature of single-family residential developments, this land use type will generate fewer trips per acre of coverage than multifamily uses. The proposed plan also has much reduced industrial land use intensity than the approved plan; approved industrial land uses will generate 14,000 more trips than proposed industrial uses. The industrial uses in the approved plan are replaced by retail uses in the proposed plan. This land use substitution results in much greater "capture" of project-generated traffic because a high concentration of industrial uses would tend to attract traffic from throughout the region, while retail uses of the type proposed would tend to oriented toward fulfilling shopping needs.

The proposed project will have a better balance of inbound/outbound peak hour trips than the approved Community Plan. This is particularly true in the afternoon peak hour, where over 36 percent of all trips are inbound (compared to 34 percent in the approved plan). This is due to the mix of proposed land uses. Whereas the approved plan provided for intensive industrial uses which would generate heavy outbound traffic volumes in the afternoon peak hour, proposed land uses would have a mix of land uses which, when combined, would generate a more balanced split on inbound and outbound traffic. This balance will reduce the congestion associated with highly concentrated directional travel.



- The project is located near the Sorrento Valley "Coaster" commuter rail station. This proximity will result in excellent rapid rail commuting opportunities for those living and working in the Sorrento Hills area, particularly if the existing Sorrento Valley shuttle service were expanded to include Sorrento Hills.
- Comparison of forecast year 2010 traffic volumes to daily LOS thresholds on the Sorrento Hills street system indicated that all roadway segments studies would experience good LOS C or better conditions.
- Peak hour intersection analysis indicated that all intersections will be characterized by good LOS C or better conditions during both peak hours analyzed, with the exception of the Carmel Mountain Road/El Camino Real/Carmel Creek Road intersection, which experiences LOS D during both peak hours. Because of key location of this intersection, all four legs will have relatively heavy peak hour volumes.
- Analysis of ramp metering at the I-5/Carmel Mountain Roads (southbound in the morning peak hour and northbound in the afternoon peak hour) indicated that demand will exceed capacity, resulting in queuing and delay during both peak hours.
- Comparison of proposed and approved plan daily street segment LOS indicated generally similar results. Under both plans, all segments would be characterized by good LOS C or better conditions, with two segments under the approved plan having better LOS than the same segments under the proposed plan, and one segment under the proposed plan having better LOS than the corresponding segment under the approved plan.
- Comparison of proposed and approved plan peak hour intersection LOS analysis indicated better operating conditions under the proposed plan than under the approved plan. The results of proposed project intersection capacity analysis using HCS methods were similar to those for the approved project using the unmodified ICU approach, a methodology known to the City of San Diego to yield optimistic results. When the previous ICU methodology was adjusted in accordance with City specifications, approved project intersection LOS worsened considerably. Comparison of proposed project intersection LOS to approved project modified ICU LOS indicated that eight of nine common intersections analyzed had better LOS under the proposed than the approved project during one or both peak hours. Even the one intersection that experienced a worsening of LOS experiences good LOS C conditions under the proposed project.
- Ramp metering analysis comparisons indicated that the proposed project will cause shorter queues than the approved project.



- Eleven of the 16 traffic facility improvements specified in the phasing plan have either been completed or are assured to the satisfaction of the City Engineer. Accordingly, development totalling approximately 26,230 ADT can occur without additional improvements.

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Kimley-Horn  
and Associates, Inc.

## ATTACHMENT "A"

■  
Suite 201  
517 Fourth Avenue  
San Diego, California  
92101

### *External Memorandum*

To: Labib Qasem

From: Dave Sorenson 

File: 095004.00

Date: December 11, 1996

Subj: Traffic Implications of Vista Sorrento Parkway Realignment

We have evaluated the traffic implications of the subject alignment. Our analysis assumes the realignment of Vista Sorrento Parkway as depicted on the revised tentative map and assumes a traffic signal installation at the new driveway onto Vista Sorrento Parkway. The following paragraphs summarize our key assumptions and findings of our analysis.

### ROADWAY REALIGNMENT AND LAND USE ADJUSTMENT

Figure 1 depicts the revised Traffic Analysis Zone (TAZ) system for Torrey Hills. As shown in this figure, Vista Sorrento Parkway is the boundary between TAZs 726 and 731. The realignment of Vista Sorrento Parkway to the west causes certain land uses that were formerly located on the western side of Vista Sorrento Parkway (i.e., in TAZ 726) to be relocated to the eastern side of this facility (i.e., in TAZ 731). Figure 2 illustrates the new limits and internal access arrangements of TAZ 731. As shown in this figure, the land uses fronting Vista Sorrento Parkway would have one main access point (indicated by a break in the Vista Sorrento Parkway median) located roughly midway between "A" Street and "B" Street. Secondary access points would be provided at "A" Street east of Vista Sorrento Parkway and on Vista Sorrento Parkway south of "A" Street. Both secondary access points would be restricted to right-in/right-out access only. No inter-parcel access would be provided between the land uses fronting Vista Sorrento Parkway and those fronting "C" Street.

Table 3.2-1R, a revised exhibit from the Torrey Hills Traffic Impact Analysis (June 7, 1996), summarizes the updated land use and traffic generation characteristics of the project. As shown in this table, TAZ 726 would contain 237.93 thousand square feet (KSF) of Industrial uses comprising the Cooper development. Project land uses moved to TAZ 731 by the realignment of Vista Sorrento Parkway include



310 KSF of Office/Industrial uses and 40 KSF of Support Commercial. The 340 multi-family dwelling units previously in TAZ 731 will remain with the Vista Sorrento Parkway realignment.

### TRAFFIC VOLUME ADJUSTMENTS AND CAPACITY ANALYSIS

In order to estimate the traffic impacts of the Vista Sorrento Parkway realignment, the traffic patterns resulting from land use adjustments had to be determined. The following assumptions were formulated to guide the re-assignment of traffic:

1. Whereas the traffic generated by the former TAZ 726 loaded onto Vista Sorrento Parkway via two locations (i.e., the west leg of the Vista Sorrento Parkway/"A" Street intersection and a driveway located to the south), 100 percent of the remaining TAZ 726 traffic was assumed to access Vista Sorrento Parkway via "A" Street; no southern driveway is assumed.
2. The incremental additional traffic generated by TAZ 731 due to the realignment of Vista Sorrento Parkway was distributed to access points in accordance with the following distribution pattern:
  - To and from the north via Vista Sorrento Parkway: 75 percent
  - To and from the south via Vista Sorrento Parkway: 20 percent
  - To and from the east via "C" Street: 5 percent
3. No east/west inter-parcel access within TAZ 731 is assumed between the industrial development and the residential development.

Figure 3 depicts the revised Year 2010 peak hour intersection turning movement volumes for Scenario 1. The Vista Sorrento Parkway intersections with "A" Street and the TAZ 731 primary driveway were analyzed using standard procedures consistent with the previously-referenced traffic study. The capacity analysis worksheets are attached to this letter. The Vista Sorrento Parkway/"A" Street intersection will be characterized by LOS C conditions during both peak hours with the traffic adjustments resulting from the Vista Sorrento Parkway realignment, which is consistent with previous analysis. The Vista Sorrento Parkway/TAZ 731 primary driveway intersection would have good LOS C conditions during both peak hours analyzed. Refer to the attachments to this report for the worksheets documenting this analysis.

Figure 4 shows the recommended intersection turn lanes for the Sorrento Hills community.

### SUPPLEMENTAL TRANSPORTATION IMPROVEMENTS

Table 3.5-1R, a revised exhibit from the previous traffic study, includes additional transportation improvements to be provided as a result of the preceding analysis.



Two new items have been added to this list. The first is the provision of a traffic signal at the Vista Sorrento Parkway/TAZ 731 primary driveway and the second is the provision of traffic signal interconnection and coordination along Vista Sorrento Parkway between Carmel Mountain Road and "B" Street.

Table 5.1-1 is a replacement transportation phasing plan for the project. While the realignment of Vista Sorrento Parkway did not cause a change in land use - only a shift in location of various uses, minor changes to the transportation phasing plan have occurred. These changes are related to development proposals that are likely to occur in the first stages of the phasing plan. The overall trip generation and therefore, the traffic impacts are unaffected by these changes to the phasing table. This transportation phasing table is applicable to the originally proposed project and the alternative project created by the Vista Sorrento Parkway realignment.

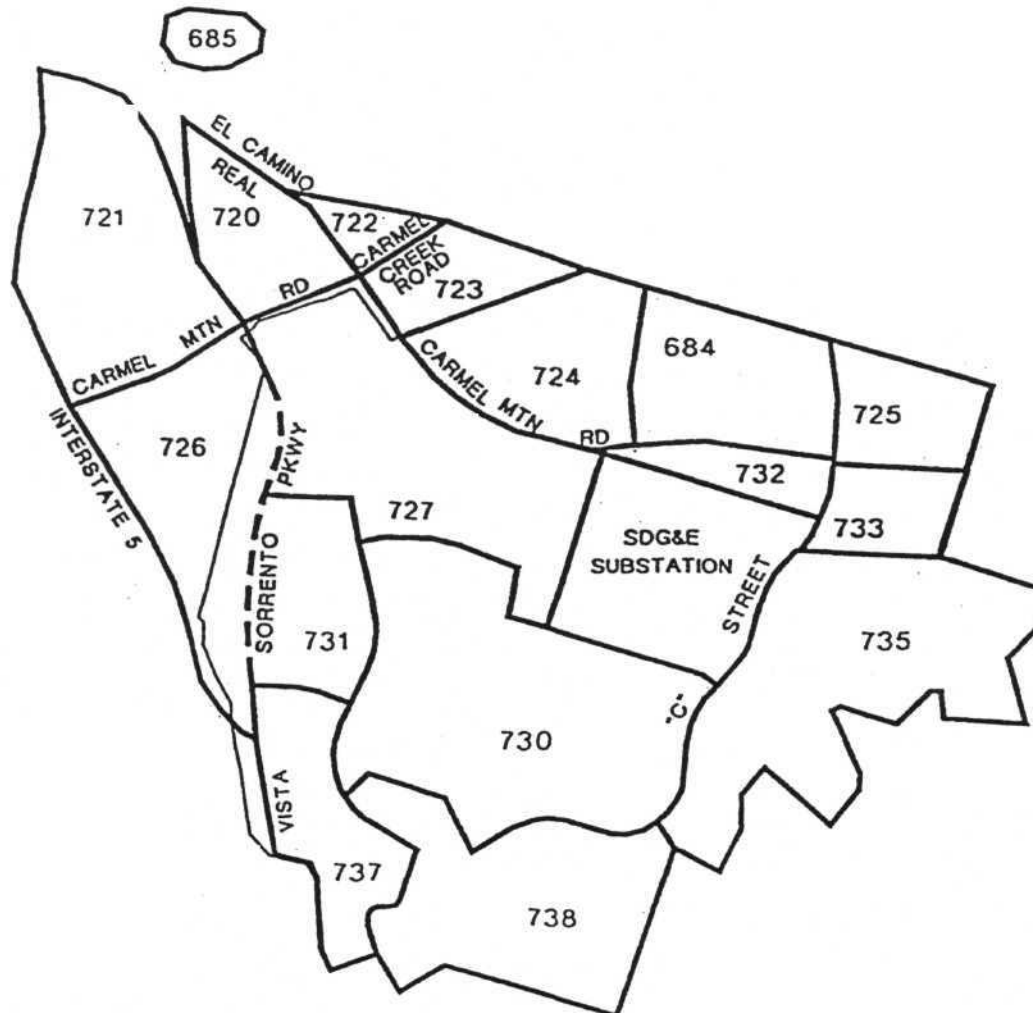
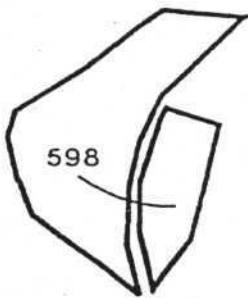
## CONCLUSIONS AND RECOMMENDATIONS

The supplementary analysis described above identified the following conclusions and recommendations:

1. Provision of traffic signal control at the Vista Sorrento Parkway/TAZ 731 primary driveway will provide good LOS conditions during both peak hours.
2. Review of the tentative map indicated that there will be adequate spacing between the proposed Vista Sorrento Parkway/TAZ 731 primary driveway and the signalized intersections to the north ("A" Street) and the south ("B" Street).
3. It is recommended that traffic signal control be provided at the Vista Sorrento Parkway/TAZ 731 primary driveway intersection. It is further recommended that the Vista Sorrento Parkway traffic signals between Carmel Mountain Road and "B" Street be interconnected.

Please call me if you have any questions or comments.

cc: Bill Meyer, AGLD  
Art Shurtleff, AGLD  
Karen Ruggles, T&B  
George Benton, CMB



LEGEND:

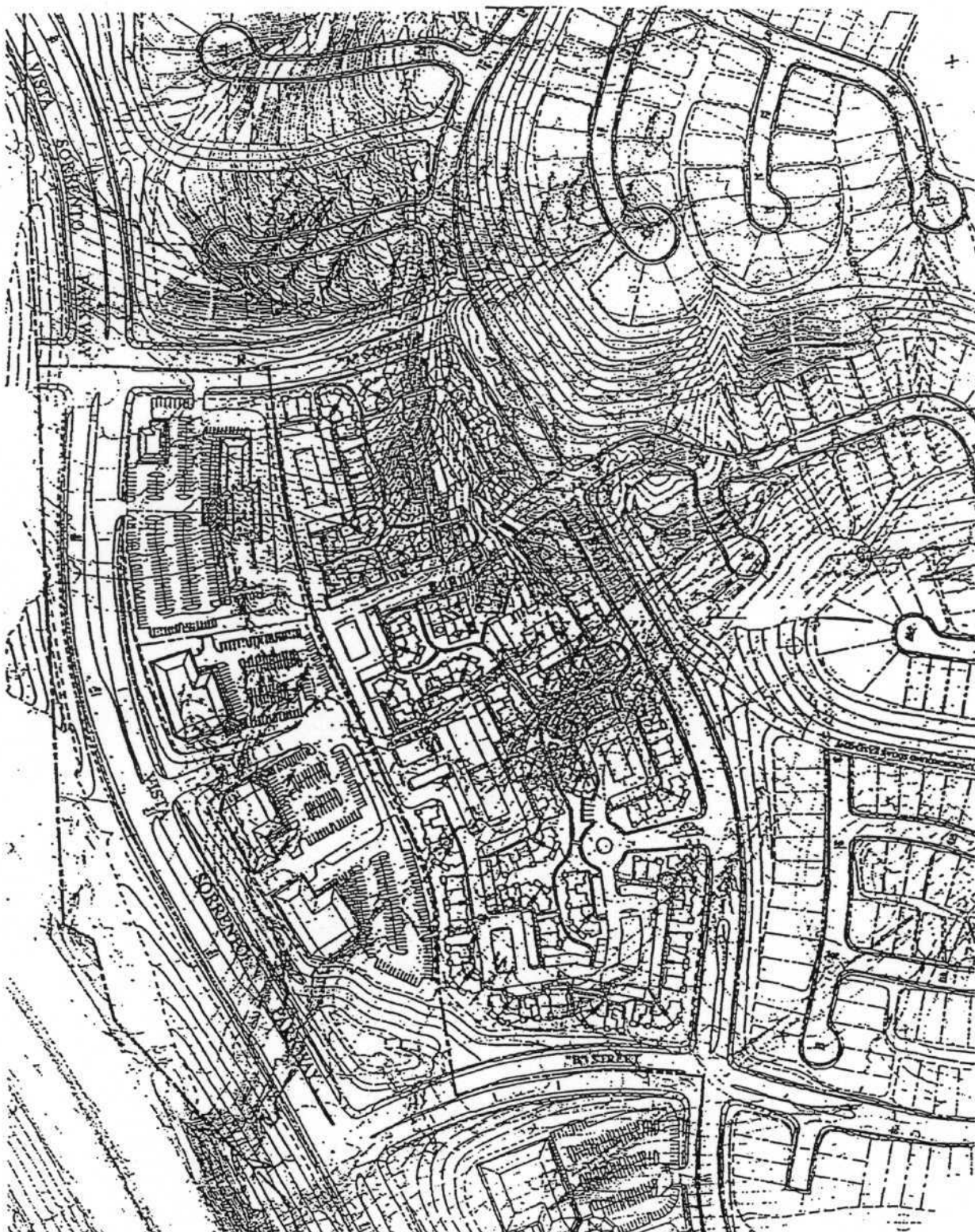
Vista Sorrento

Parkway Realignment - - - -

*Traffic Analysis Zones  
TORREY HILLS  
FIGURE 1*



KIMLEY-HORN and ASSOCIATES



Not to Scale



KIMLEY-HORN and ASSOCIATES

*Revised*  
*Vista Sorrento Parkway Realignment*  
**TORREY HILLS**  
*FIGURE 2*



TABLE 3.2-1R  
TORREY HILLS DAILY AND PEAK HOUR TRIP GENERATION  
SUBTOTALLED BY TRAFFIC ANALYSIS ZONE (CUMULATIVE RATE FOR RETAIL USES)

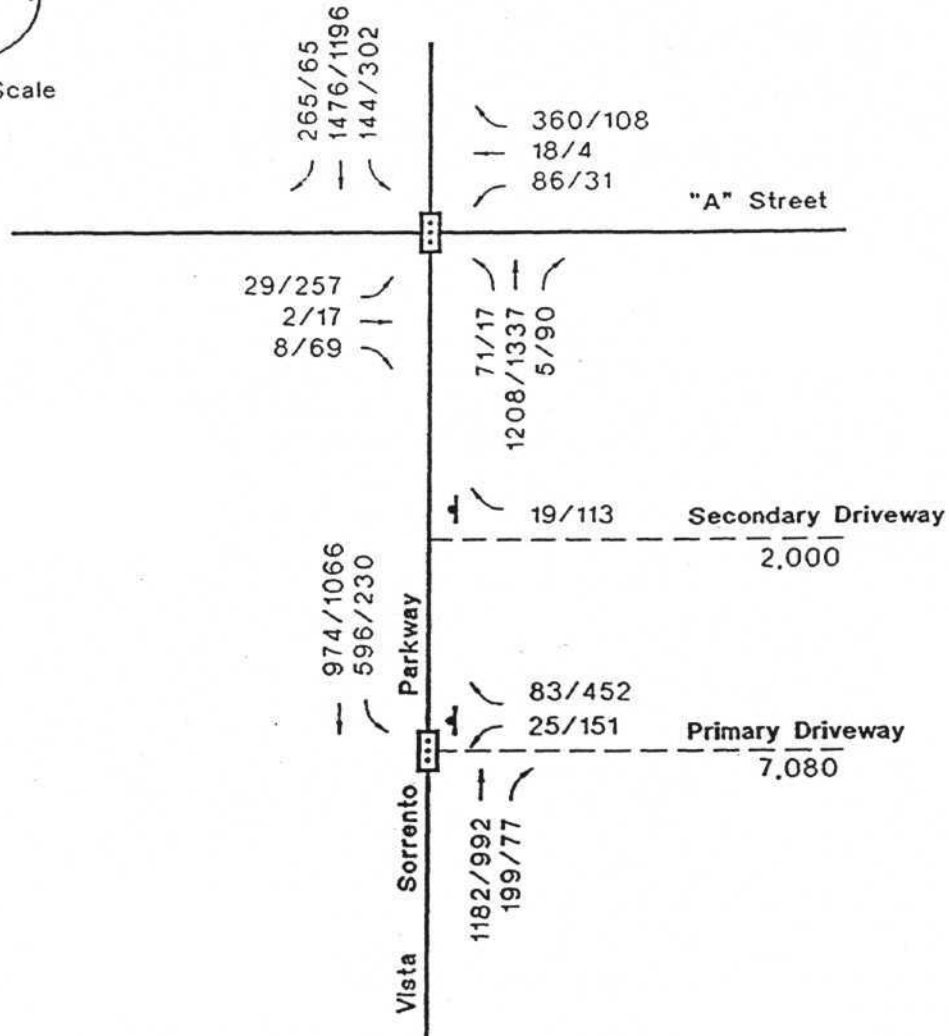
TAZ	LAND USE	AMOUNT	DAILY TRIP RATE	AM PEAK HOUR TRIPS			PM PEAK HOUR TRIPS			
				ADT	TOTAL	IN	OUT	TOTAL	IN	OUT
598	Office/Corporate	440,066 SF	15 /KSF	6,601	990	891	99	990	99	891
598	Visitor Serving Comm.	36,580 SF	20 /KSF	732	110	99	11	110	11	99
				7,333	1,100	990	110	1,100	110	990
684	SF 4,000	121 DU	10 /DU	1,210	97	19	77	121	85	36
684	SF 5,000	37 DU	10 /DU	370	30	6	24	37	26	11
				1,580	126	25	101	158	111	47
685	Single-Family Dwelling	2 DU	10 /DU	20	2	0	1	2	1	1
720	Office	210,000 SF	20 /KSF	4,200	546	491	55	588	118	470
721	Office	210,000 SF	20 /KSF	4,200	546	491	55	588	118	470
721	Single-Family Dwelling	121 DU	10 /DU	1,210	97	19	77	121	85	36
721	Industrial	120,000 SF	15 /KSF	1,800	198	178	20	216	43	173
721	Industrial	42,070 SF	15 /KSF	631	69	62	7	76	15	61
				7,841	910	751	159	1,001	261	740
722	Courtyard	52 DU	10 /DU	520	42	8	33	52	36	16
723	Courtyard	143 DU	10 /DU	1,430	114	23	92	143	100	43
724	Courtyard	120 DU	10 /DU	1,200	96	19	77	120	84	36
724	SF 5,000	30 DU	10 /DU	300	24	5	19	30	21	9
				1,500	120	24	96	150	105	45
725	SF 5,000	83 DU	10 /DU	830	66	13	53	83	58	25
726	Industrial	237,930 SF	15 /KSF	3,569	393	353	39	428	86	343
727	SF 5,000	121 DU	10 /DU	1,210	97	19	77	121	85	36
727	Elementary School	4 AC	60 /AC	240	62	37	25	12	4	8
727	Park	16.2 AC	50 /AC	810	32	16	16	65	32	32
				2,260	192	73	119	198	121	77
730	SF 4,000	242 DU	10 /DU	2,420	194	39	155	242	169	73
731	Multi-Family	340 DU	8 /DU	2,720	218	44	174	272	190	82
731	Office/Industrial	310,000 SF	20 /KSF	6,200	806	725	81	744	149	595
731	Support Commercial	40,000 SF	72 /KSF	2,880	115	69	46	317	158	158
				11,800	1,139	838	301	1,333	498	835
732	Neighborhood Commer.	10,000 SF	72 /KSF	720	29	17	12	79	40	40
733	Neighborhood Commer.	120,000 SF	72 /KSF	8,640	346	207	138	950	475	475
735	Multi-Family	430 DU	8 /DU	3,440	275	55	220	344	241	103
735	SF 4,000	172 DU	10 /DU	1,720	138	28	110	172	120	52
				5,160	758	290	468	1,466	836	630
737	Office	220,000 SF	20 /KSF	4,400	572	515	57	616	123	493
738	SF 5,000	90 DU	10 /DU	900	72	14	58	90	63	27
TOTALS				65,123	6,374	4,466	1,908	7,853	2,860	4,993

\* Average Daily Traffic Volume

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Not to Scale



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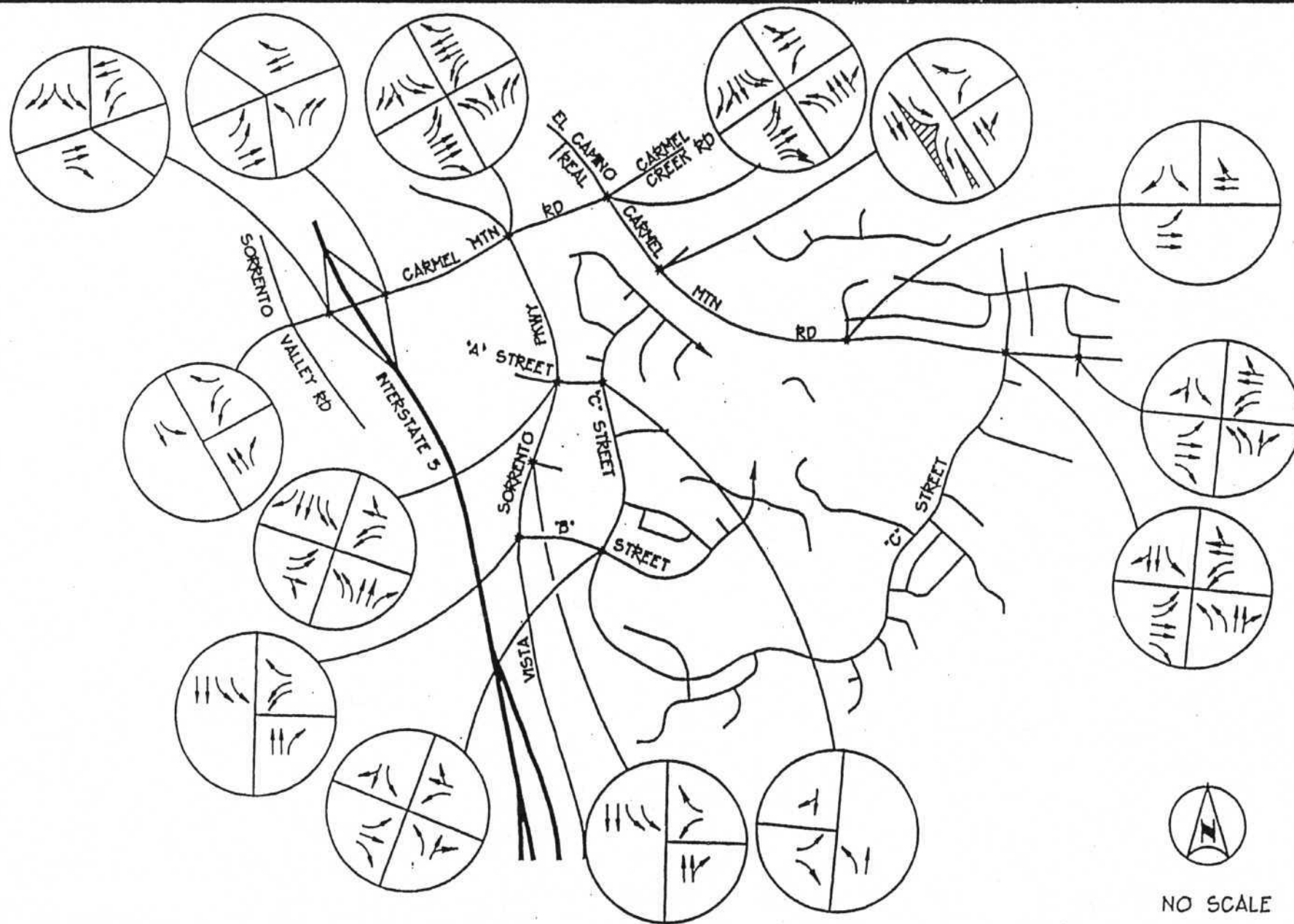
AM/PM Peak Hour Intersection Turning Movements	XX/YY
Traffic Signal Control	
Stop Sign Control	

Year 2010 AM/PM Peak Hour  
Intersection Turning Movement Volumes,  
Vista Sorrento Parkway Realignment Scenario 1  
TORREY HILLS  
FIGURE 3

S:\OWCS\095004.00\TV-SEN1.DWG



KIMLEY-HORN and ASSOCIATES



NO SCALE



Kimley-Horn  
and Associates, Inc.

TORREY HILLS  
INTERSECTION LANE CONFIGURATIONS

FIGURE 4

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**TABLE 3.5-1R**  
**SUMMARY OF TRANSPORTATION IMPROVEMENTS**

Location	Improvement (a)	Status
Carmel Mountain Road I-5 - El Camino Real El Camino Real - E. Project Boundary	Construct as six lane primary arterial Construct as four lane major	Completed Bonded for but not constructed
Vista Sorrento Parkway Carmel Mountain Rd. - Sorrento Valley Blvd.	Construct as four lane major	To be bonded for and constructed by project
"A" Street	Construct as four lane collector	To be bonded for and constructed by project
"B" Street	Construct as four lane collector	To be bonded for and constructed by project
"C" Street Carmel Mountain Rd. - "GG" St. "GG" St. - "A" Street	Construct as four lane collector Construct as two lane collector	To be bonded for and constructed by project To be bonded for and constructed by project
Carmel Mountain Rd./Sorrento Valley Rd.	Provide traffic signal	Constructed
Carmel Mountain Rd./I-5 southbound ramps	Provide traffic signal	To be provided under Sorrento Hills Development Agreement; secured by letters of credit
Carmel Mountain Rd./I-5 northbound ramps	Provide traffic signal	To be provided under Sorrento Hills Development Agreement; secured by letters of credit
Carmel Mountain Rd./Vista Sorrento Pkwy.	Provide traffic signal	Constructed
Carmel Mountain Rd./El Camino Real/Carmel Creek Rd.	Provide traffic signal	Constructed
Carmel Mountain Rd./"Z" Street	Provide traffic signal	To be bonded for and constructed by project
Carmel Mountain Rd./"C" Street	Provide traffic signal	To be bonded for and constructed by project
Carmel Mountain Rd./Shopping Ctr. Access	Provide traffic signal	To be bonded for and constructed by project
Vista Sorrento Pkwy./"A" Street	Provide traffic signal	To be bonded for and constructed by project
Vista Sorrento Pkwy./"B" Street	Provide traffic signal	To be bonded for and constructed by project
"B" St./"C" St.	Provide traffic signal	To be bonded for and constructed by project
Vista Sorrento Pkwy./TAZ 731 Driveway	Provide traffic signal	To be bonded for and constructed by project
Vista Sorrento Parkway: from Carmel Mtn. Rd. to "B" St.	Interconnect traffic signals	To be bonded for and constructed by project
Vista Sorrento Pkwy./Sorrento Valley Blvd. (b)	Provide traffic signal	Provide traffic signal
Sorrento Valley Blvd./Roselle St. (b)	Provide traffic signal	To be bonded for and constructed by project

(a) Refer to Figure 3.1-2 for Intersection lane geometrics

(b) Per Sept. 29, 1994 traffic study

**TABLE 6.1-1  
TORREY HILLS  
TRANSPORTATION PHASING PLAN**

PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS						TRAFFIC FACILITY IMPROVEMENTS TO BE ASSURED UNLESS OTHERWISE NOTED
					AM PEAK			PM PEAK			
					TOTAL	IN	OUT	TOTAL	IN	OUT	
1-4											
	Single-Family Dwelling	750 DU	10 /DU	7,500	600	120	480	750	525	225	(1) Complete circulation loop of four lanes of El Camino Real from Carmel Valley Road South to Carmel Mountain Road, and Carmel Mountain Road west to Sorrento Valley Road. Improvements to be as required by Tentative Tract Map. (2) Install traffic signal at El Camino Real and Carmel Valley Road. (3) Install two traffic signals on Carmel Valley Road at Interstate 5 Ramp Intersections. (4) Widen on-ramps and off-ramps at Interstate 5/Carmel Valley Road Interchange. (5) Install traffic signal, Sorrento Valley Road and Carmel Mountain Road. (6) Perform revised computerized travel forecast in conjunction with North City West, to the satisfaction of the City Engineer. (7) CIP 62-099.4, Sorrento Valley Road - Sorrento Valley Blvd. to 3300 feet northerly (8) Widen Carmel Valley Road to six lanes from I-5 to the realigned El Camino Real. (9) Construct El Camino Real to six lanes from Carmel Valley Road south to Carmel Mountain Road. Construct Carmel Mountain Road to six lanes from El Camino Real west to Sorrento Valley Blvd. (10) CIP 63-032.0, Sorrento Valley Blvd. bridge over Los Penasquitos Channel. (11) CIP 63-304.0, Sorrento Valley Road - Sorrento Valley Blvd. to I-805. (12) Widen/construct Carmel Valley Road to six lanes from El Camino Real to 300 feet east of Carmel Country Road and with four lanes east to the North City West Boundary. Construct a four lane road from the North City West boundary to Interstate Route 15. (the latter is a regional transportation improvement) OR Construct direct freeway ramp connections (northbound offramp and southbound onramp) at Interstate Route 5 and Carmel Valley Road and widen I-5 between I-805 and Carmel Valley Road (regional transportation improvement)
	Multiple-Family Dwelling	340 DU	8 /DU	2,720	218	44	174	272	190	82	
	Office	312 KSF	20 /KSF	6,240	811	730	81	874	175	699	
	Industrial	323 KSF	15 /KSF	4,845	533	480	53	581	116	465	
	Park	14.5 AC	50 /AC	725	29	15	15	58	29	29	
	Retail	3 KSF	72 /KSF	216	9	5	3	24	12	12	
	Office/Corporate (a)	267 KSF	15 /KSF	4,005	601	541	60	601	60	541	
TOTALS				26,261	2,800	1,934	867	3,160	1,107	2,052	

(a) Represents American Assets property. Additional development beyond the 4,005 ADT has occurred. A transfer of 160 ADT from Harry O. Cooper to American Asset, Inc. was executed to allow the development threshold to be exceeded.

PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS						TRAFFIC FACILITY IMPROVEMENTS TO BE ASSURED UNLESS OTHERWISE NOTED
					AM PEAK			PM PEAK			
					TOTAL	IN	OUT	TOTAL	IN	OUT	
5											
	Single-Family Dwelling	1215 DU	10 /DU	12,150	972	194	778	1,215	851	365	(13) Extend Carmel Mountain Road to eastern subdivision boundary. This improvement will be tied to the construction of the shopping center in the eastern portion of the project.
	Multiple-Family Dwelling	650 DU	8 /DU	5,200	416	83	333	520	364	156	(14) Widen /construct Carmel Valley Road to six lanes from El Camino Real to 300 feet east of Carmel Country Road and with four lanes east to the North City West boundary.
	Office	475 KSF	20 /KSF	9,500	1,235	1,112	124	1,330	266	1,064	Construct a continuous four lane road from the North City West boundary east to I-15.
	Industrial	323 KSF	15 /KSF	4,845	533	480	53	581	116	465	(the latter is a regional transportation improvement)
	Park	14.5 AC	50 /AC	725	29	15	15	58	29	29	AND
	Retail	120 KSF	72 /KSF	8,640	346	207	138	950	475	475	Construct direct freeway ramp connections (northbound offramp and southbound onramp) at
	Office/Corporate	303.4 KSF	15 /KSF	4,551	683	614	68	683	68	614	Interstate Route 5 and Carmel Valley Road and widen I-5 between I-805 and
	Visitor Serving	36.58 KSF	20 /KSF	732	110	99	11	110	11	99	Carmel Valley Road (regional transportation improvement)
	School	4 AC	60 /AC	240	62	37	25	12	4	8	AND
	TOTALS			46,683	4,385	2,841	1,644	6,459	2,184	3,275	Construct freeway ramps at Carmel Mountain Road and Interstate Route 5



PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS						TRAFFIC FACILITY IMPROVEMENTS TO BE ASSURED UNLESS OTHERWISE NOTED
					AM PEAK			PM PEAK			
					TOTAL	IN	OUT	TOTAL	IN	OUT	
6	Single-Family Dwelling	1334 DU	10 /DU	13,340	1,067	213	854	1,334	934	400	(15) Construct Vista Sorrento Parkway as a four lane major street between Sorrento Valley Blvd and Carmel Mountain Road. Extend Carmel Mountain Road from El Camino Real to the eastern community plan boundary.  (16) Construct subdivision improvements as required by phasing and the City Engineer.
	Multiple-Family Dwelling	650 DU	8 /DU	5,200	416	83	333	520	364	156	
	Office	732 KSF	20 /KSF	14,640	1,903	1,713	190	2,050	410	1,640	
	Industrial	323 KSF	15 /KSF	4,845	522	454	68	564	124	439	
	Park	14.5 AC	50 /AC	725	29	15	15	58	29	29	
	Retail	115 KSF	72 /KSF	8,280	331	199	132	911	455	455	
	Day Care (6)	3 KSF		0	0	0	0	0	0	0	
	Office/Corporate	440.066 KSF	15 /KSF	6,601	990	891	99	990	99	891	
	Visitor Serving	36.58 KSF	20 /KSF	732	110	99	11	110	11	99	
	School	4 AC	60 /AC	240	62	37	25	12	4	8	
TOTALS				64,603	6,431	3,704	1,727	6,648	2,430	4,118	

PHASE	LAND USE	AMOUNT	RATE	TOTAL ADT*	PEAK HOUR TRIPS					
					AM PEAK			PM PEAK		
					TOTAL	IN	OUT	TOTAL	IN	OUT
7	Single-Family Dwelling	1334 DU	10 /DU	13,340	1,067	213	854	1,334	934	400
	Multiple-Family Dwelling	770 DU	8 /DU	6,160	493	99	394	616	431	185
	Office	950 KSF	20 /KSF	19,000	2,470	2,223	247	2,660	532	2,128
	Industrial	400 KSF	15 /KSF	6,000	660	594	66	720	144	576
	Park	14.5 AC	50 /AC	725	29	15	15	58	29	29
	Retail	170 KSF	72 /KSF	12,240	490	294	196	1,346	673	673
	Day Care (6)	3 KSF		0	0	0	0	0	0	0
	Office/Corporate	440.066 KSF	15 /KSF	6,601	990	891	99	990	99	891
	Visitor Serving	36.58 KSF	20 /KSF	732	110	99	11	110	11	99
	School	4 AC	60 /AC	240	62	37	25	12	4	8
TOTALS				66,038	6,371	4,466	1,905	7,846	2,857	4,989

# NOTES:

- Improvements to be completed, under contract, bonded or scheduled in the City Capital Improvements Program, or programmed in the State Transportation Improvement Program to the satisfaction of the City Engineer before exceeding the allowable levels of development in the columns above.
- It should be noted that this plan is intended to serve as a guideline for sequential development of street improvements. Because the geographic order of development is not certain, it will be necessary to review annually and revise this phasing plan in order to reflect current land development proposals and actual trip generation rates and trip distribution.
- All streets within the boundaries of the Community Plan shall be improved to full width as part of the development on adjacent parcels. Traffic signals shall be constructed as required via the Tentative Tract Map.
- Total permitted ADT by land use can be adjusted so that ADT's are transferred from one land use to another so long as the listed total ADT's from all land use is not exceeded, subject to additional studies as required by the City Engineer. The additional studies must evaluate if the uses different from those assumed in this plan invalidate the ADT and/or peak hour traffic calculations and therefore, the phasing of transportation improvements.
- Thresholds for each section are governed by the issuance of building permits and not the recordation of final maps.
- The 3 KSF of Day Care is a component of the industrial uses in the project. Its traffic generation is included in the industrial uses.